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FERTILIZER PRODUCTION AND MARKETING IN EGYPT: BASELINE STUDY

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PREFACE

The Agricultural Policy Reform Program (APRP) financed by USAID has as its goals increasing Egypt's economic growth through opening agricultural markets, privatizing agricultural markets and agribusiness, improving the efficiency of Egypt's water resources, restructuring agricultural support services and targeting food subsidies. The Monitoring, Verification and Evaluation (MVE) Unit of the APRP is responsible for assessing the impact of reforms introduced by the project. This baseline study of the fertilizer subsector provides an overview of the structure of fertilizer production and marketing in Egypt that includes January, 1997, the beginning of the project, and mid-1998, the mid-point of project implementation. The report summarizes policy reform issues, opportunities and constraints. It also suggests indicators of progress and proposes how to measure them as they relate to the fertilizer sub-sector. The paper draws on previous and concurrent work in the subsector carried out by the Reform Design and Implementation (RDI), Food Security Research (FSR) and MVE units of the APRP, as well as numerous other previous publications and research activities.

EXECUTIVE SUMMARY

This baseline study of the fertilizer subsector provides an overview of the structure, conduct and performance of fertilizer production and marketing in Egypt in January, 1997, near the beginning of APRP, and in mid-1998, the mid-point of project implementation. Egypt currently consumes about one million tons of nitrogen, 150,000 tons of P_2O_5 and 40,000 tons of K_20 each year. Domestic production amounts to the equivalent of one million tons of nitrogen and 200,000 tons of P_2O_5. The country imports all of its potassic fertilizer.

Market structure. Radical changes in market structure and production capacity are expected in the near future, as inefficient and obsolete public sector plants are upgraded or replaced with new capacity in the private sector. By 2002/2003 completion of projects already underway or planned will add about 850,000 tons of net new nitrogen capacity, a 70% increase over current capacity. Completion of phosphate improvement projects will add about 20,000 tons to phosphorus capacity by the year 2000, an increase of about 10%. The bulk of both nitrogen and phosphorus production capacity will be competitive at long-run world market prices. This is fortunate because, with domestic utilization expected to increase between 1.3% and 4.6% per year, most of the net increase in production will be forced into export markets for the foreseeable future.

Before 1996 all domestic fertilizer production capacity was publicly owned. With planned additions to capacity, the distribution of ownership may change significantly, although "private sector" participation seems to consist of mixed companies that are more than 25% owned by government entities. Fertilizer distribution, by contrast, has become increasingly dominated by the private sector over the 1991-98 period, despite some important disruptions. The Principal Bank for Development and Agricultural Credit (PBDAC) had monopolized distribution of both domestic and imported fertilizers of all types through a credit-linked system of village-level branches. In 1992 the subsidy on most fertilizers was removed; private traders and cooperatives were allowed to purchase fertilizer directly from processing plants and to import, subject to a 30% duty on nitrogenous and phosphatic fertilizer imports. By 1994 private traders handled about 70% of the market (nutrient basis).

In 1995 heavy exports of nitrogenous fertilizers from government plants combined with the closing of the two largest plants for maintenance during the season of peak demand to create a shortage of fertilizer that drove domestic prices to twice their normal level. In response the Government reinstituted PBDAC's monopoly on distribution of domestically produced nitrogenous fertilizers. To alleviate the supply shortage, the Government allowed private traders to import one million tons of fertilizer duty-free. As stocks of fertilizer were built back up and then began overhanging the market over the next 18 months, especially at PBDAC, the Government reacted by reducing the allocation of domestic production to PBDAC first in favor of cooperatives, and then in favor of public trading companies and private sector dealers. We estimate that the private sector actually distributed to farmers about 60% of all fertilizer on a nutrient basis over the 1997-98 crop year. The role of the private sector is again increasing and should return to pre-1995 levels in the current crop year.

Market conduct. Perhaps the most serious impediment to the evolution of private sector participation in fertilizer production and marketing has been erratic government policies that seem to focus on who the actors are and not on what makes them behave the way they do. Public sector interference results in the allocation of domestic production to favored market intermediaries, both public and private, at the expense of more efficient markets. Onerous licensing procedures, at both the local and national levels, create barriers to entry that significantly delay private responses to market pressures.

Much of the favoritism in the allocation of domestically produced fertilizer arises from a shortage of high-quality fertilizer during the peak season. Private storage facilities are insufficient, and seasonal ex-factory price differentials are not adequate, to cover storage costs. Most of the available storage capacity is controlled by PBDAC, which apparently also provides the only commercial credit available for financing fertilizer inventory. With its own stocks at unusually high levels and in need of liquidation, there are charges that PBDAC is not making storage facilities or financing available to private sectors traders.

Fertilizer producers maintain they are free to reduce prices but not increase them. This inability to increase prices in order to retain adequate domestic supplies was the direct cause of the 1995 crisis. Price declines, moreover, are inhibited by the large duty on fertilizer imports and the virtual balance between domestic production and domestic utilization. The pricing situation is changing in 1998, however. The emergence of duty-free imports of nitrogenous fertilizer from selected Arab countries and production at the new Abu Qir plant each help to establish the missing link between domestic and world market prices. Producers who do not lower their prices will be forced to carry high inventories or export their fertilizer at even lower prices, unless the Government intervenes or producers reduce output.

Market performance. The 1995 fertilizer crisis notwithstanding, Egypt's combined semi-public and private sector production and marketing system for fertilizer has done a decent job of delivering supplies to farmers in a timely, if not always in a least-cost, fashion. Since the increase in ex-factory prices between 1988 and 1992 in parallel with the gradual reduction in production and distribution subsidies, ex-factory prices have hardly changed. World prices, on the other hand, rose sharply in 1994/95, and then just as sharply, fell in late 1997. Today, c.i.f. prices of urea are more than 20% below domestic ex-factory costs.

As price pressures build in the local market because of high inventories and low world prices, fertilizer producers are becoming more responsive to market forces. Once seasonal production is sufficient to meet seasonal demand, as it will be in 1999, storage will cease to be an issue, and domestic prices should begin tracking c.i.f. and export prices throughout the year. That should help the private sector resume its dominant role in fertilizer marketing.

An examination of nominal protection coefficients shows that the domestic price of fertilizer has been below import parity for all the 1990s except the last year. In 1997/98 this implicit subsidy on fertilizer use turned into an implicit tax, all with virtually no change in the ex-factory price. In light of this, now is an excellent time for Egypt to review its policy of keeping ex-factory prices for fertilizer relatively stable. Prices for output have already been, for the most part, free to move with world prices. Allowing input prices to fluctuate with

them will, in most cases, stabilize aggregate farm income better than holding one of the two fixed while the other is free to move in response to market forces.

Studies of farm level prices for fertilizer have shown that, with the exception of the period in 1995/96 when supplies were disrupted, the private sector has delivered fertilizer to farmers at prices that are about 10% higher than PBDAC and the cooperatives. Although private traders' selling prices are generally higher, the portion of their margins which they actually control is lower for all products and locations examined, generally less than half as much as the margins of PBDAC, when expressed as a percentage of the ex-factory price. Ranging between 3.5 and 5%, private sector margins are quite modest by international standards. Because PBDAC and the cooperatives are partially subsidized by the Government, their margins are lower than would prevail under full cost pricing. Thus removing PBDAC from the market would result in higher prices for fertilizer at the farm level and an expansion of private trader margins, as they price in all of their costs plus a normal profit. Such expanding private sector margins will be a sign of success, not failure, of marketing reforms.

As long as world prices for fertilizer remain below domestic prices, the impending increase in capacity of both nitrogenous and phosphatic fertilizer production should increase the incentive for producers to create wider distribution networks in order to maximize domestic sales. There will no longer be a reason for PBDAC to be involved in fertilizer distribution, and without (direct or indirect) subsidies, it will probably not be able to compete. The recent availability of duty-free imports of urea from some Arab countries creates a direct link between domestic and world market prices that will be difficult to avoid. Given the prognosis for a prolonged period of low prices for natural gas, the time is ripe for policy changes that promise to maintain these links once prices return to longer-run levels.

Recommendations. To sustain the progress of privatization in the fertilizer subsector, we suggest the following:

1) Continue to re-establish the distribution system that existed prior to 1995. If Government wishes that PBDAC continue distributing fertilizer, it should institute full-cost accounting for setting PBDAC's retail prices. The same principle holds for cooperatives; they should not be a source of subsidized inputs via indirect operating subsidies from the Government.

2) Fertilizer producers should be free to give discounts sufficiently large to cover storage costs; they will increase their success rate by making these discounts widely available. To be successful, lower off-season prices will have to be available to all market participants, including farmers. Once domestic production is large enough to meet peak domestic demand, there will be no need for storage discounts. Local prices will simply follow world prices as the surplus each month is exported.

3) The current practice of directing fertilizer producers to allocate a portion of local production to public trading companies and other favored companies should be discontinued. This delays the closing of unprofitable public enterprises and adds to farmers' costs.

4) With world prices currently as depressed as they will get, now is a good time to restructure the protection for fertilizer so that the level of effective protection will fall as world prices

recover to normal levels. This can be accomplished by replacing the 30% duty with a 0-10% duty and an anti-dumping levy of the difference between 30% and the new duty.

5) Cooperatives could potentially play a major role in agricultural marketing activities, whether for inputs or outputs, utilizing an extensive infrastructure already in place. To strengthen them, the Government may want to consider requiring PBDAC to return to the cooperatives the storage facilities that were transferred to PBDAC from them in 1976. This would enable the cooperatives to draw supplies from the district or governorate cooperatives acting as their wholesalers. If this were to happen, a greater share of the fertilizer needs of farmers could be met by the cooperative sector.

6) PBDAC should be prevented from using its financing function and withholding of storage facilities to limit competition from the private sector. The Government should a) require PBDAC to charge no more than market rates for storage facilities, b) auction some PBDAC storage to the private sector, and/or c) encourage lending for fertilizer storage by commercial banks other than PBDAC.

7) There is a need to certify the quality of imports and exports. Licensing or some other process to ensure this will continue, but it needs to be more responsive and timely. There should be a default approval process, one in which approval is automatic if a response is not provided within seven days of filing for a license or permit. The Government should establish one locus for licensing, and have an integrated comprehensive application that covers the needs of all levels of government.

8) Mellor (1997) and El Guindy et al. (1997) recommended establishment of a fertilizer information system to assist companies and the Government anticipate and respond to market signals. It remains an important objective to have such information widely disseminated.

1. MARKET STRUCTURE

At the present time the Egyptian fertilizer market is evolving, in fits and starts, from a government and parastatal structure to more of a free market structure. The goal of the reform program is to increase participation by the private sector in fertilizer production and marketing, while promoting competition. In its initial stages this has involved replacing public sector actors with private or near private sector actors. Ultimately, if the goals of the APRP are to be realized, it will require measures to ensure open access and competition within the private sector as well.

1.1 Fertilizer Production

Egypt has an abundance of natural gas, limestone, and phosphate rock, three of the primary raw materials for production of nitrogenous and phosphatic fertilizers. Sulfur is imported, except for small amounts recovered from refining and coke operations. All raw materials for fertilizer production are in the public sector, whether indigenous or imported.

Egypt produces both nitrogenous and phosphatic fertilizers, and has at least one blending plant, currently inactive. The country is an exporter of phosphate, and will soon significantly increase its capacity to export nitrogenous fertilizers. All potassic fertilizers are imported, as are small amounts of nitrogen and phosphates.

Because phosphate production has always been under the control of the government, phosphate production and marketing have been more stable. Nitrogen production, on the other hand, has become a blend of public and private production units, with the result that government policies rather than directives provide more of the operating framework for fertilizer production units. This has caused, and will continue to cause, disruptions in the market as private sector actors follow the economic signals that result from government policies rather than following the intentions of those policies. In the initial stages of the reform process, the intention of policy makers still carries a lot of weight for guiding the behavior of the private sector. But as the process evolves, participants will feel more free to respond overtly to market signals that may be at variance with the intentions of policy makers. In such a context policy makers will have to give much more thought to the legal, regulatory and fiscal dimensions of markets if Egypt is to realize the benefits of free and competitive markets.

Egypt currently consumes about one million tons of nitrogen, 150,000 tons of P_2O_5, and 40,000 tons of K_20 each year. Domestic production amounts to the equivalent of one million tons of nitrogen and 200,000 tons of P_2O_5. In an average year exports of nitrogen fertilizers represent about 14% of domestic production, and exports of phosphorus, about 20%.

1.1.1 Production Capacity

Nitrogenous Fertilizers: In Egypt, there are currently four companies with a total of five production sites that produce nitrogenous fertilizers:

- Abu Qir Fertilizer and Chemical Industries, with one production site at Alexandria.

- El-Nasr Fertilizer and Chemical (SEMADCO), with two production sites, Talkha and Suez.
- El-Nasr Company for Coke and Chemicals, with one production site at Helwan.
- Egyptian Chemical Industries (KIMA), with one production site at Aswan.

As of 1997 the total capacity of the four local companies is around 7.5 million tons of 15.5% nitrogen equivalent, or 1.16 million tons of elemental nitrogen. Abu Qir is the only private company among the four (See public-private shares, below). Table 1.1 shows the breakdown of this capacity by product.

El-Nasr ranks first in terms of production capacity with 46% of total elemental nitrogen. Abu Qir is second with 41%. Generally speaking, traders and farmers prefer the products of Abu Qir factory, both urea and ammonium nitrate, over the other factories, because they are granulated, the ammonium nitrate contains some manganese - a micro nutrient and conditioner, and use better quality bags. As a result the products are easier to handle, store and utilize.

Radical changes in production capacity are expected in the near future, as inefficient and obsolete public sector plants are replaced with new capacity in the private sector. The capacity to be phased out totals 137,000 tons of N by 2000/2001 and 348,000 tons by 2002/2003, as follows:

- EL-NASR (SEMADCO) Talkha Ammonium Nitrate, which is expected to be phased out in 2002/2003 (211,000 tons of N);
- El-COKE Ammonium Nitrate and Ammonium Sulphate, which are expected to be phased out in 2000/2001 (30,000 tons of N);
- KIMA Ammonium Nitrate, which is expected to be phased out in 2000/2001 (107,000 tons of N).

The capacity to be added includes:

- Abu Qir III, already under construction and expected to be operating by September 1998, with an annual capacity of 600,000 tons of urea (279,000 tons of N);
- Amriya Company, a private sector company with 35% ownership by each of the Egyptian and Saudi Arabian Governments, and the remaining 30% by private shareholders. It is in the planning stage and is expected to begin operating by the year 2000/2001 with productive capacity of 800,000 metric tons of urea annually (372,000 tons of N).
- Misr Fertilizer Company at Suez, another private sector company in the planning stage, is expected to start operations by the year 2000/2001. It will have an annual capacity of 600,000 tons of urea (279,000 tons of N).
- El-Coke Helwan Company is in the advanced planning stage and is expected to start operation as a private sector company by the year 2000/2001. It will have a productive capacity of 800,000 metric tons of ammonium nitrate annually (268,000 tons of N).

Table 1.1: Capacity of Nitrogenous Fertilizer Production in Egypt (1997)

Product	Factory	Capacity (000 Tons)
Urea (46.5 %N)	El-Nasr Co.	570
	Abu Qir Co.	495
	Total Urea	1065
Ammonium Nitrate (33.5 %N)	El-Nasr Co.	630
	Abu Qir Co.	750
	Kima Co.	320
	El-Coke Co.	90
	Total A. Nitrate	1790
Ammonium Sulfate (20.6%N)		
	El-Nasr Co.	100
	El-Coke Co.	12
	Total A. Sulfate	112
Calcium Nitrate (15.5%N)	El-Nasr Co.	270
Total 15.5 % N Equivalent		**7483**
Total Nitrogen		**1160**

Source: Holding Company for Fertilizers and Chemicals

Completion of the two projects already underway (Abu Qir and El Coke Helwan) will add about 558,000 tons of nitrogen capacity by the year 2000, replacing about 137,000 tons to be phased out, for a net gain in domestic production capacity of 420,000 tons of nitrogen or 36%. If all of the planned capacity is added as well, Egypt will have additional productive capacity of around 1.2 million tons of nitrogen the year 2000/2001, dropping to 1.06 million tons in the year 2002/2003 as obsolete capacity is removed from production.

Phosphatic Fertilizers: Egypt produces mostly single super phosphate (15% P_2O_5). SSP accounts for 80% of total phosphatic fertilizers on a nutrient basis, followed by concentrated superphosphate (CSP - 37.5% P_2O_5). Limited quantities of triple super phosphate (TSP-46% $P_2O_{5)}$) are produced, mostly for export. The phosphate fertilizer companies are :

- Abou Zaabal Company for Chemicals and Fertilizer, with one production site at Abou Zaabal, and one phosphate rock mining site at West Sebeia.
- Egyptian Financial and Industrial Company (EFIC), with two sites, one at Assiut and the other at Kafr El-Zayat.
- El-Nasr Phosphate, with one phosphate rock mining site at Sebeia.

C Red Sea Phosphate, with one phosphate rock mining site at Hamrawin.

Only Abou Zaabal and EFIC produce fertilizer as such. EFIC does not own a phosphate mine.

According to the Chemonics study (1996), Egypt's phosphate plants were producing at less than 70% of capacity in 1994-95, largely as a result of a sharp drop in demand following the reduction in fertilizer subsidies (40% between 1991 and 1995). This increased costs to unprofitable levels and is inducing producers to improve product quality and marketability via granulation in order to develop export markets. The announced plans for retrofit and/or expansion are as follows:

C Abou Zaabal: Retrofit of phosphoric acid and new granulation unit.
C EFIC (Assiut): expansion of the granulation capacity.
C EFIC (Kafr El-Zayat): expansion of curing storage and a new granulation unit.

These changes will enable the plants to produce at designed capacity and expand capacity somewhat by exporting the surplus, helping them once again become financially viable. This, in turn, will increase their attractiveness for privatization. We do not know the expected completion dates for these projects, but production for 1996/97 finally surpassed the level of 1990/91 that prevailed prior to the removal of subsidies.

Public-Private Shares: Before 1996, all domestic fertilizer production capacity was publicly owned. Abu Qir factory was privatized in January 1996, with 95% of the shares owned by government organizations (33%), and four public banks (62%), and 5% owned by the company's employees. The proposed factory at Amriya will be 70% owned by the Governments of Egypt and Saudia Arabia, with the balance in private hands. The privatization of Abu Qir reduced pure public ownership of nitrogen capacity to 59%. All new nitrogen production capacity that will be completed before 2000/2001 (about 1.3 million tons of N) will be private, and 340,000 tons of public sector capacity will be phased out between 2000 and 2003. This will reduce the purely publicly owned nitrogen production capacity to 16% of total capacity. Abu Qir and other private companies that are more than 25% owned by public sector entities will control ____ of the domestic nitrogen capacity. All phosphorus capacity remains in the public sector at the present time.

An analytical issue that needs to be confronted is how to consider private companies that are, in fact, owned by public entities. The Government considers any private company with 25% or more public ownership as sufficiently public as to warrant an audit by the Public Auditor. If we adopt that definition none of the plants existing or planned would qualify as private. That may be too restrictive. Much will depend on how the Government exercises its voting power in these enterprises.

Abu Qir, for example, appears to be operating pretty much as one would expect of a private company that has been protected from competition for many years. One can see more and more focus on markets and the financial results of the company as the managers gain experience and define the limits of their power vis-a-vis the public shareholders. More importantly, there seems to be a constant eye on markets. There is little concrete evidence of anti-competitive behavior, although there are still directives from the Government on the allocation of production.

It is worth noting that, by all accounts, Abu Qir is the best operating of the domestic fertilizer plants. Whether this is historical accident or the flavor of things to come will become known as more production plants come under semi-public control, i.e. where non-governmental entities hold a majority of the stock.

1.1.2 Factory Output

Production of nitrogenous chemical fertilizers began in Egypt in 1951 with calcium nitrate (15.5%N), produced by the Egyptian Company for Fertilizer and Chemical Industries at the city of Suez. Since that time it has become common to measure nitrogenous fertilizer in equivalent units of 15.5% nitrogen. As is apparent from Table 1.2, production of calcium nitrate is now nil. Accordingly, in this report we have adopted the more conventional approach of converting production to a least common denominator by using the amount of nutrient in each product, i.e. the amount of N, P_2O_5 and K_20. This methodology is also used by the Egyptian Fertilizer Development Center.

Tables 1.2 and 1.3 show the evolution of production of nitrogen and phosphorus, respectively, by product, on a nutrient basis. During the last six years, following the elimination of subsidies, the domestic production of nitrogenous fertilizers increased by 3.6% per year, while production of phosphate grew by just under 1%. The rate of capacity utilization for nitrogen increased from 81% in 1994/95 to 88% in 1996/97. On a total nutrient basis the three main types of nitrogenous fertilizer produced in Egypt in 1996/97 are ammonium nitrate (51%), urea (47%), and ammonium sulfate (2%).

Being an industrial commodity fertilizer production is relatively stable as compared with the seasonality of demand. Monthly fluctuations in production are mainly due to scheduled repairs and maintenance at the different factories. Prior to 1995, producing factories undertook scheduled maintenance during the summer season when demand is at its peak, disrupting the flow of fertilizer. This contributed to a fertilizer crisis in June 1995, when the two largest companies performed their scheduled maintenance at the same time. Following that crisis, Abu Qir Company changed the timing of scheduled repairs and maintenance so as to avoid disrupting supplies during this critical time.

1.2 Imports, Exports and Domestic Utilization

At the present time there is a high tariff on imports of nitrogenous and phosphatic fertilizers intended to protect the domestic industry. In the past such protection has not imposed a heavy tax on agriculture because domestic prices have been lower than import prices, though it has served to prevent the private sector from importing during those times when PBDAC has had a monopoly on the distribution of domestically produced fertilizer. Currently, product quality improvements and improved production efficiencies either attained or planned, appear to be sufficient for the domestic industry to compete successfully with most fertilizer imports.

Since 1990/91 Egyptian imports of nitrogenous fertilizers have declined as domestic production capacity has expanded, the one exception being 1995/96, when the Government authorized the duty-free importation of 1.25 million tons of nitrogenous fertilizers in response to a shortage that occurred in 1995. Were domestic prices linked to international prices, the only

imports would be about 170,000 tons of ammonium sulfate, for which domestic capacity is not sufficient. Nitrogenous fertilizer imports during 1997/98 did not exceed 25,000 tons, all urea from Libya, equivalent to about 1% of domestic production. This transaction was stimulated by the absence of duties on imports from Lybia in the face of low international prices and high domestic ex-factory prices for nitrogenous fertilizers.

Exports of nitrogenous fertilizers averaged around 110,000 tons prior to 1994/95, then surged to 190,000 tons in 1994/95 when high international prices in the face of lower fixed domestic prices saw nitrogenous fertilizer exports nearly double on a nutrient basis. This surge in exports contributed to a fertilizer crisis that saw domestic prices double. In the following two years exports dropped to less than 10,000 tons on a nutrient basis as Government placed restrictions on exports of nitrogenous fertilizers in order to protect local supplies. In mid-1997, the private sector was again allowed to export up to 10% of its share of factory allocations. However, quantities exported under this authorization were limited due to relatively lower international prices for nitrogenous fertilizers as compared to domestic prices. Abu Qir exported only 35,000 tons of ammonium nitrate, at a price just covering production costs, in order to satisfy contractual obligations with French importers. El-Nasr Company exported 21,000 tons of urea. Total exports in that year accounted for only 2% of domestic production. Table 1.2 provides details on nitrogen imports and exports.

Trade in phosphatic fertilizers consists mainly of exports of single super phosphate, and has grown significantly since 1992/93. Exports account for about 30% of total production. There are no imports of phosphatic fertilizers of any consequence. Potassic fertilizers, on the other hand, are all imported, and have been declining since subsidies were removed. Table 1.3 includes trade data on phosphorus and potassium.

Data on consumption are less reliable as there are no good data on changes in inventories. Moreover, the difficulty of estimating changes in the level of inventories increases as PBDAC becomes a less significant force in fertilizer distribution and storage. Tables 1.2 and 1.3 present estimates of availability of fertilizer from various sources. Utilization between the various sources varies considerably for specific years, but show more consistency when viewed over a series of years.

Table 1.2: Production And Trade of Nitrogen Fertilizer in Egypt: 1991 - 1998

(000 Metric Tons)

	Percent Nitrogen	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Production								
Urea	46.5%	924.0	873.8	836.2	930.6	916.7	1046.7	1040.6
AN	33.5%	581.8	1119.2	1337.1	1343.5	1494.9	1578.1	1557.0
AS	20.6%	63.3	67.1	67.2	69.6	67.3	77.6	92.6
CN	15.5%	225.8	211.9	95.5	107.5	25.2	5.0	0.0
Total N		**672.6**	**827.9**	**865.4**	**913.8**	**944.8**	**1032.1**	**1024.5**
Exports								
Urea			154.7	70.8	155.4	185.6	16.9	0.0
AN			166.0	180.0	116.0	306.4	0.0	30.0
AS			0.0	0.0	0.0	7.5	0.0	0.0
CN			0.0	0.0	0.0	0.0	0.0	0.0
Total N		**25.9**	**127.5**	**93.2**	**111.1**	**190.5**	**7.9**	**10.1**
Percent of Production		3.9%	15.4%	10.8%	12.2%	20.2%	0.8%	1.0%
Imports								
Urea							0.0	22.0
AN							165.4	48.6
AS							328.9	168.6
CN							20.2	7.2
CAN	31.5%						9.7	0.0
Total N		**153.9**	**66.0**	**34.2**	**39.0**	**21.7**	**129.3**	**62.4**
Percent of Availability		19.2%	8.6%	4.2%	4.6%	2.8%	11.2%	5.8%
Domestic Availability (N)		**800.6**	**766.4**	**806.4**	**841.7**	**776.0**	**1153.6**	**1076.9**

Sources: Egypt Fertilizer Develpoment Center; Holding Company for Fertilizers and Chemicals; El Guindy et Al. (1997); Mellor, 1997.

Mellor reviews estimates of nitrogen consumption made by the Ministry of Agriculture and Land Reclamation (MALR), the Central Agency for Public Mobilization and Statistics (CAPMAS), the Egyptian Fertilizer Development Council (EFDC) and fertilizer producers for the period 1990/91 to 1994/95. He concludes that, since 1987/88, total consumption of nitrogenous fertilizers has stabilized at around 5.1 million tons of 15.5% nitrogen equivalent, or 790,000 tons of nitrogen, with no more than a 5% fluctuation around the mean of all four. Table 1.2 reproduces both the average values which he calculated, as well as the data obtained from MALR by the Chemonics (1996) study cited by Mellor as the source of this data.

Data obtained from MALR more recently for the period 1994/95 to 1996/97, also reproduced in Table 1.2, show a somewhat different picture. When laid next to the Chemonics series, the two do not appear to come from the same source. Utilization based on the later series appears to be much higher.

Table 1.3: Production and Trade of Phosphatic Fertilizers in Egypt, 1990-1998

(000 Metric Tons)

	Percent Nutrient	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
PHOSPHATE (P2O5)								
Production								
SSP	15.0%	1058.0	825.6	670.0	759.4	913.8	964.2	1215.2
CSP	37.0%	84.0	49.9	32.7	11.6	42.2	55.0	52.3
TSP	46.0%	2.0	6.0	0.0	0.0	0.0	0.0	0.0
Total P2O5		**190.7**	**145.1**	**112.6**	**118.2**	**152.7**	**165.0**	**201.6**
Exports								
SSP		5.0	5.1	18.0	105.4	185.5	157.6	253.4
CSP		3.4	0.0	9.9	39.8	19.0	45.1	56.8
TSP		5.7	1.7	0.0	0.0	0.0	0.0	0.0
Total P2O5		**4.6**	**1.5**	**6.4**	**30.5**	**34.9**	**40.3**	**59.0**
Percent of Production		2.4%	1.1%	5.7%	25.8%	22.8%	24.4%	29.3%
Imports								
Total		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic Availability (P2O5)		**186.1**	**143.5**	**106.2**	**87.7**	**117.8**	**124.7**	**142.6**

Source: Egypt Fertilizer Development Center; Holding Company for Fertilizers and Chemicals

IFDC (1993).

When compared to domestic availability, which is the sum of domestic production and imports, less exports, a relatively solid number, it would appear that the MALR number for 1994/95 is too high, knowing what we do about domestic shortages during most of 1995. For 1995/96 and later, the MALR numbers may be the more precise. The lower numbers projected by Mellor imply an accumulation of domestic inventories of 517,000 tons of nitrogen or 3.3 million tons of 15.5% equivalent between 1995 and 1997, versus 1.7 million tons in storage at PBDAC and probably no more than 300-400,000 tons of 15.5% equivalent stored by the private sector by mid-1997. The MALR numbers, on the other hand, are consistent with such levels of inventory.

Data obtained from IFDC/FAO regarding domestic consumption (presumably the same as domestic utilization) of all three nutrients are broadly consistent with both series, but reveal just how tenuous the utilization/consumption data are. All things considered, during the second half of the nineties, the volume of domestic fertilizer utilization appears to have stabilized around 950,000 tons of nitrogen, 150,000 tons of P_2O_5 and 30,000 tons of K_20.

1.3 Fertilizer Distribution

The distribution of chemical fertilizers in Egypt has experienced dramatic changes in the last ten years. At the present time several public organizations, cooperatives and private traders operate in the distribution chain for fertilizer, both at the wholesale and retail levels. The share of each has varied greatly within the last ten years, according to changes in government policy. The modalities of distribution can be divided into four periods.

1.3.1 Prior to 1988

Between the mid-seventies and 1987 the Principal Bank for Development and Agricultural Credit (PBDAC) monopolized the procurement of domestic and imported chemical fertilizers as well as their distribution and delivery to farmers, through a credit-linked system of branches located at the village level. Retail sales were made at fixed, subsidized prices determined by the Government, and the quantities were rationed based on fixed quotas for each crop, as determined by the technical departments in the Ministry of Agriculture and Land Reclamation. The system formed an integral part of the government control over production, import, distribution and use of locally produced chemical fertilizers, as indicated in Chart 1.1 This system operated until January, 1988 when the Government began reducing agricultural subsidies.

1.3.2 The First Stage of Reform: 1987 to 1995

In 1987, the Government of Egypt agreed to execute an Egyptian agricultural policy reform program within the economic reform component of the Agricultural Production and Credit Project (APCP), executed by PBDAC with the assistance of USAID. The reform program consisted of six tranches, including the transfer of farm input activities, mainly the distribution of chemical fertilizers, insecticides, seeds, and to some extent agriculture machinery, to the private sector. PBDAC was to operate in the financial sector like any other commercial bank. The agreement included the removal of subsidies on fertilizers distributed by the public sector.

By 1991 the subsidy on chemical fertilizers had been totally removed, except for potash. At the same time, the private sector, the cooperatives, and the Egyptian Agricultural Organization (public sector) were allowed to buy fertilizer directly from the manufacturers, at fixed prices determined partly by the market. The private sector was allowed to import fertilizer, subject to a 30% import duty on nitrogenous and phosphatic fertilizer imports.

By December, 1992, the number of private dealers of fertilizer in Egypt reached 6042, out of which 1069 were in upper Egypt, 1158 in middle Egypt, and 3815 in lower Egypt. At that time private traders handled 58% of fertilizer distribution (IFDC, 1993). Privatization continued until, by 1994, chemical fertilizer procurement and distribution was based on a market-oriented system of private distributors, dealers, and cooperatives, largely replacing PBDAC. Driven by the need for timely availability, adequacy of fertilizers of the right type, and their quality, areas where PBDAC is weak, farmers shifted away from PBDAC as the supplier of choice. This was due, in part, to PBDAC switching from providing credit in kind to cash credit, which freed farmers to go elsewhere for supplies, as well as to the availability of credit

from private dealers. Within a remarkably short period, the reforms succeeded in virtually replacing PBDAC with a competitive, market-oriented fertilizer distribution system. Surveys done by the Ministry of Agriculture and Land Reclamation reveal that marketing margins were relatively small despite the small number of distributors allowed to purchase fertilizer directly from the producing factories during this period.

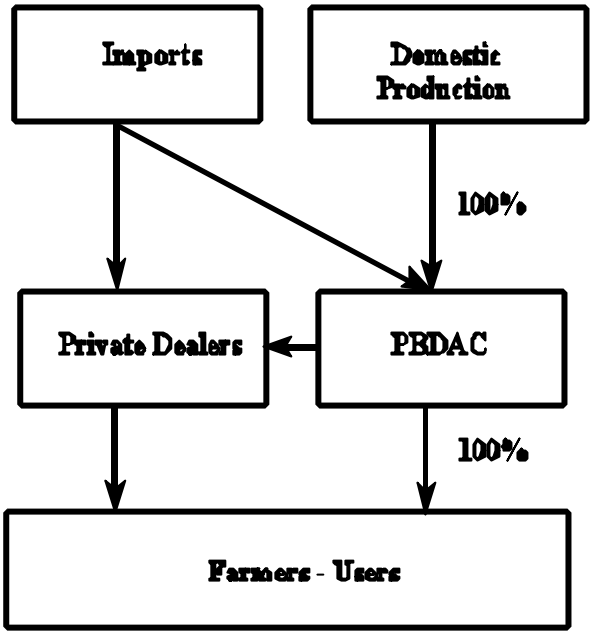
As of the summer of 1995 PBDAC was a small participant in the market, as the following data reported in Mellor (1996) indicate:

Table 1.4 : Distribution of Fertilizers, by Channel. 1995

(Percent)

Market Channel	Urea	AN	SSP
PBDAC	8	9	7
Cooperatives	36	30	30
Private Dealers	55	61	63

Chart 1: Distribution of Nitrogenous Chemical Fertilizers Before 1998



The relative importance of each actor at this time is described in Chart 2 on the next page, using nitrogenous fertilizer as an indicator.

1.3.3 The 1995 Fertilizer Crisis

In June 1995, a shortage of nitrogenous fertilizer occurred due to a combination of repair and maintenance activities undertaken at the two major producing plants within a short period of time, and low inventories resulting from increased exports due to a relatively high international price for these fertilizers. This reduced available supplies of nitrogenous fertilizers, causing a tremendous increase in prices.

To respond to this situation the Government instructed factories producing nitrogenous fertilizers to deliver all their production only to PBDAC for direct distribution to farmers at fixed prices, as depicted in Chart 3. This was a most serious setback for the policy reform process, as it brought back the monopoly of PBDAC in the procurement and distribution of domestically produced chemical fertilizers, although this time it was limited to nitrogenous fertilizers.

1.3.4 The Aftermath of the Crisis

In January, 1996, as supplies began to be restored, the Government relaxed PBDAC's monopoly a bit and instructed local nitrogenous fertilizer producers to deliver their production to the various distribution channels as follows:

PBDAC	87%
General Cooperative for Agrarian Reform	8%
General Cooperative for Land Reclamation	5%

This formal restriction on private sector involvement in the distribution of locally produced chemical fertilizers continued until August 1996, and is described in Chart 4. During this time private traders were, nonetheless, importing and distributing one million tons of nitrogenous fertilizer requested by the Government for overcoming the 1995 shortfall, and had indirect access to locally produced supplies as "leakage" from the formal system.

Field surveys undertaken by the Ministry of Agriculture and Land Reclamation during this time shows how severe the impact on the private traders was. During the summer of 1995 the survey found a private sector share of 88% for ammonium nitrate and 84% for urea. By the winter of 1995/96 this had declined to 27% and 24% respectively. The share of the different intermediaries distributing fertilizers in that study were as follows, as a percentage of farm purchases:

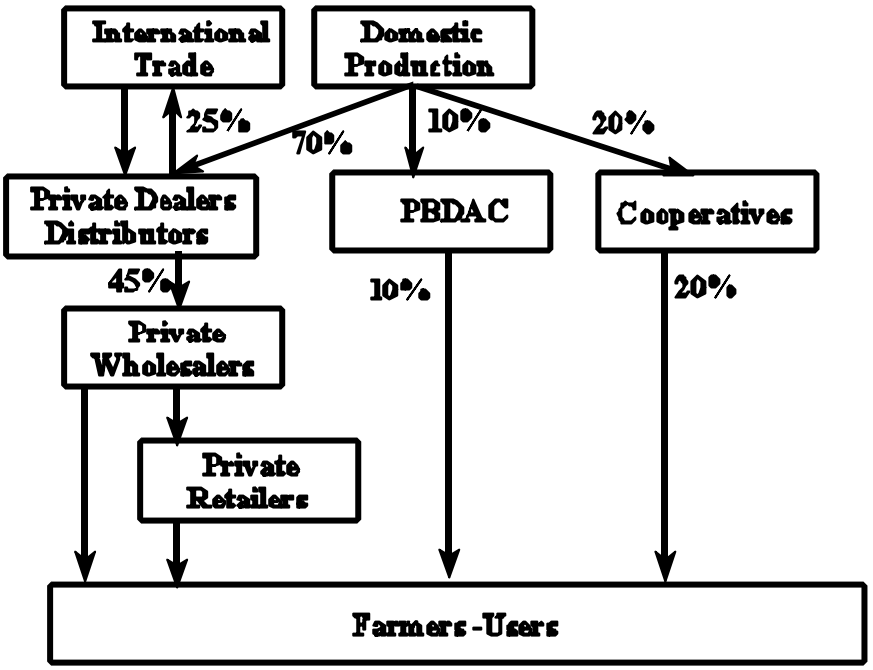
	Urea		Ammonium Nitrate	
Intermediary	**Summer 1995**	**Winter 1995/96**	**Summer 1995**	**Winter 1995/96**
PBDAC	7	72	1	46
Cooperatives	9	3	11	26
Private dealers	84	24	88	27

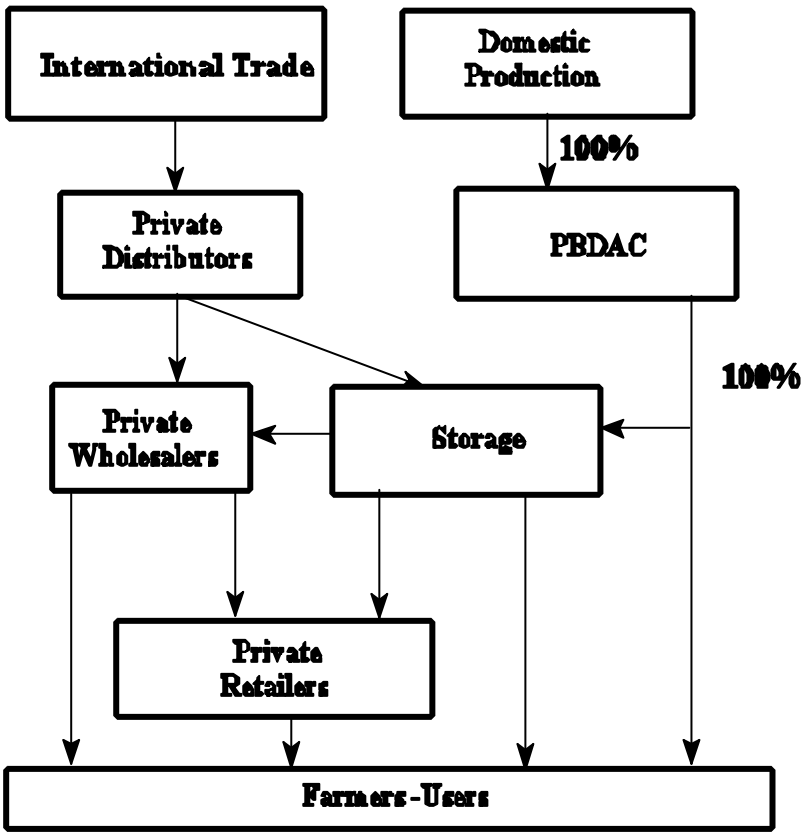
Source: Ministry of Agriculture and Land Reform.

The combination of a return to normal of domestic production capacity and arrival of the imported supplies of nitrogenous fertilizer combined with lower seasonal demand for fertilizer to cause both PBDAC and private sector inventories of nitrogen fertilizer to soar. This led the Government, in August, 1996, to redistribute the 87% share of local production designated for delivery to PBDAC as follows:

PBDAC	49 percent
The private sector and cooperatives	38 percent

Chart 2: Distribution of Nitrogenous Chemical Fertilizers, 1994





NB: All persentages are based on domestic prodcution.

Chart 3: Distribution of Nitrogenous Chemical Fertilizers, August - December, 1995

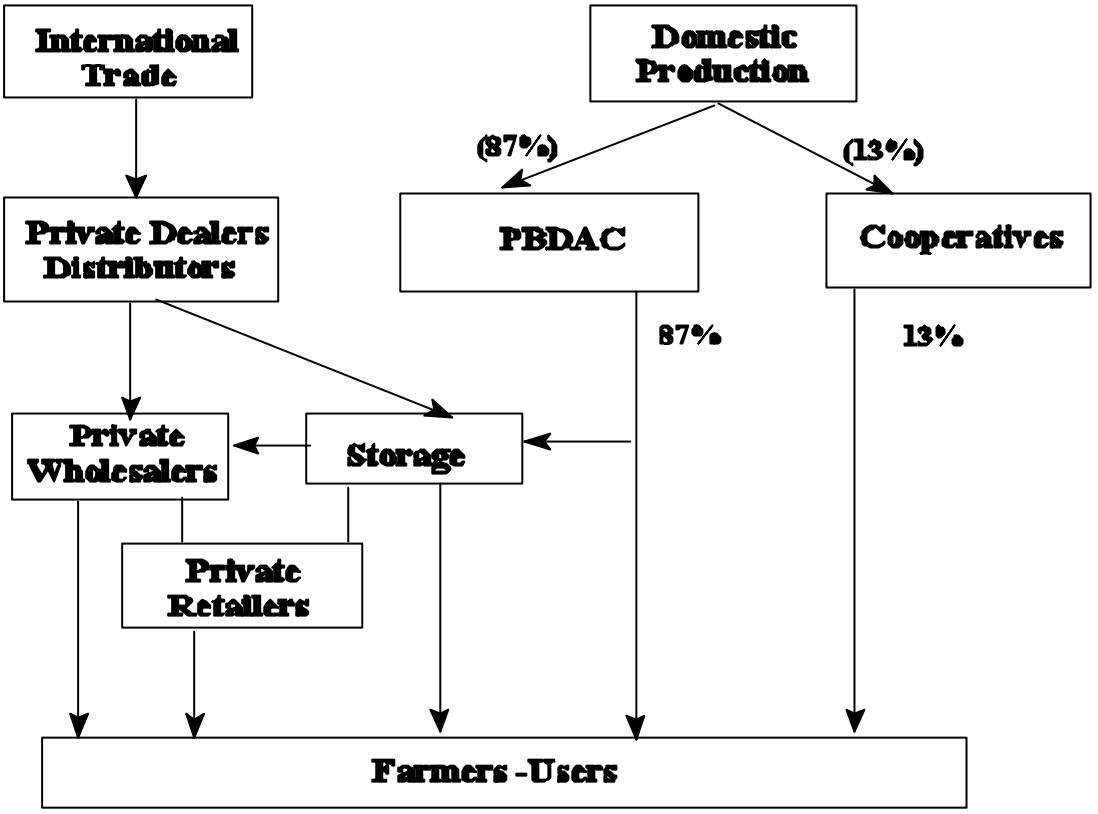


Chart 4: Distribution of Nitrogenous Chemical Fertilizers, January - August, 1996

Thus, the private sector was, once again, officially incorporated into the distribution network, though it was allowed to export no more than 10% of its share (See Chart 5).

In spite of the large share allocated to the private sector, stocks continued to accumulate in distribution channels, especially for PBDAC. PBDAC was unable to get rid of its existing stocks, especially those produced by SEMADCO (Talkha factory), which farmers perceive to be lower in quality compared to fertilizers from the Abu Qir factory. Accordingly, in December 1997, the Government instructed the producers to reduce the PBDAC quota from 49 percent to 25 percent, with the remaining quantities to be redistributed to the private sector and the cooperatives, as indicated in Chart 6. Subsequently, PBDAC refused to accept a large portion of the 25% it was to receive from Talkha, but continued taking the full 25% from Abu Qir. The higher quality of Abu Qir fertilizer aided in disposing of the lower quality stock from Talkha.

Due to the declining share of PBDAC to 25 percent of domestic production, and the limitation of its purchases to the products of Abu Qir, we estimate PBDAC's share of national production at present to be no more than 15%. The rest would be handled by the public trading companies, the cooperatives, and private traders. Chart 7 shows our estimate of how the quantities break down between these various entities at the present time.

Throughout the period of the fertilizer crisis the private sector continued to distribute locally produced phosphatic and imported potassic fertilizers. PBDAC did not provide these to its farmer clients. No doubt one of the factors driving farmers back to private traders is to get all of their fertilizer needs met in a single transaction. As long as there was scarcity in the market and PBDAC had the lowest cost supplies, PBDAC was the supplier of preference. Once supplies became plentiful and price differences between PBDAC and the private sector became more normal, however, farmer's preferences changed.

The following is a brief summary of the role of each of the agencies that participated in the distribution of nitrogenous fertilizers in Egypt during the last decade, by agency. Data on the distribution of nitrogenous fertilizers are summarized in tables 1.5, 1.6, and 1.7.

PBDAC: The share of PBDAC in the distribution of locally produced nitrogenous fertilizers has fluctuated tremendously during the last decade. Before the agricultural liberalization programs, since its establishment in 1976, it monopolized the distribution of all domestically produced fertilizers, nitrogenous as well as phosphorus. With the agricultural liberalization programs that started in the late eighties, its share was reduced gradually until it reached 10 - 15% by 1995. Because of the fertilizer crisis, in 1995 the PBDAC monopoly was reinstituted for distribution of locally produced nitrogenous fertilizers. This persisted through the rest of 1995 and began eroding in the beginning of 1996. As of June, 1998 its share has declined to around 15% of nitrogenous fertilizers and is negligible for the others.

Cooperatives: According to the Cooperative Law of 1980, there are four main Agricultural Cooperatives: Multipurpose Cooperatives, Agrarian Reform Cooperatives, Land Reclamation Cooperatives, and Specialized Cooperatives. After 1990, with the reduction of PBDAC's role in the distribution of chemical fertilizers, agricultural cooperatives started to play a bigger role, receiving specific quotas from the producing factories and making direct deliveries to farmers. After being briefly cut out of the loop in mid-1995, the cooperatives regained a quota of 13% of national production of nitrogenous fertilizers in 1996. Their share increased in mid 1997,

and again at the end of 1997. Currently, the cooperatives' share amounts to about 30% of nitrogenous fertilizer on a nutrient basis.

Public Trading Companies: The public trading companies include: the Ploughs and Engineering Company, General Company for Trade and Chemicals, Mid-Trade Company, Multi-Trade Company, and the Agriculture Company. The first four companies are nothing more than skimmers of surplus as they do not handle fertilizers at all; they simply sell their quotas from the producing factories to the private traders, obtaining a commission ranging between 2%-5%. Their participation began at the end of 1996 when Abu Qir was not supplying PBDAC because of the latter's refusal to accept a price increase. They were given this concession as a way of providing off-budget financing for their other activities. The decline of the share of PBDAC to 25% provided additional opportunity for someone else to collect rents on the scarcity value of Abu Qir fertilizers. Currently, the share of the public trading companies from domestic production amounts to about 10% of urea and 10% of Ammonium Nitrate.

Private Traders: Private traders both resell fertilizer to retailers located at the regional or village levels and sell directly to relatively big farmers. The removal of subsidies in the late 1980s allowed the private sector to once again become active in fertilizer distribution in Egypt. By July, 1992, private sector traders dominated the market. By 1995 the fertilizer market had been transformed into a competitive market with minimal presence of the public sector. There was an interruption in this trend in 1995, when the Government reintroduced, by administrative fiat, the monopoly of PBDAC with respect to domestically produced nitrogenous fertilizer. Since then the private sector has once again emerged as the dominant distribution channel for chemical fertilizers.

Combining imports and allocations from domestic processing plants for all products, we estimate that private dealers directly purchased 35% of chemical fertilizers during the 1997-98 crop year. Including amounts purchased from the Public Trading Companies and amounts acquired as leakage from PBDAC, we estimate that the private sector actually distributed to farmers 55-60% of all fertilizer on a nutrient basis over the same period. Table 1. shows the evolution of market shares by the various intermediaries since 1991/92.

1.4 Storage

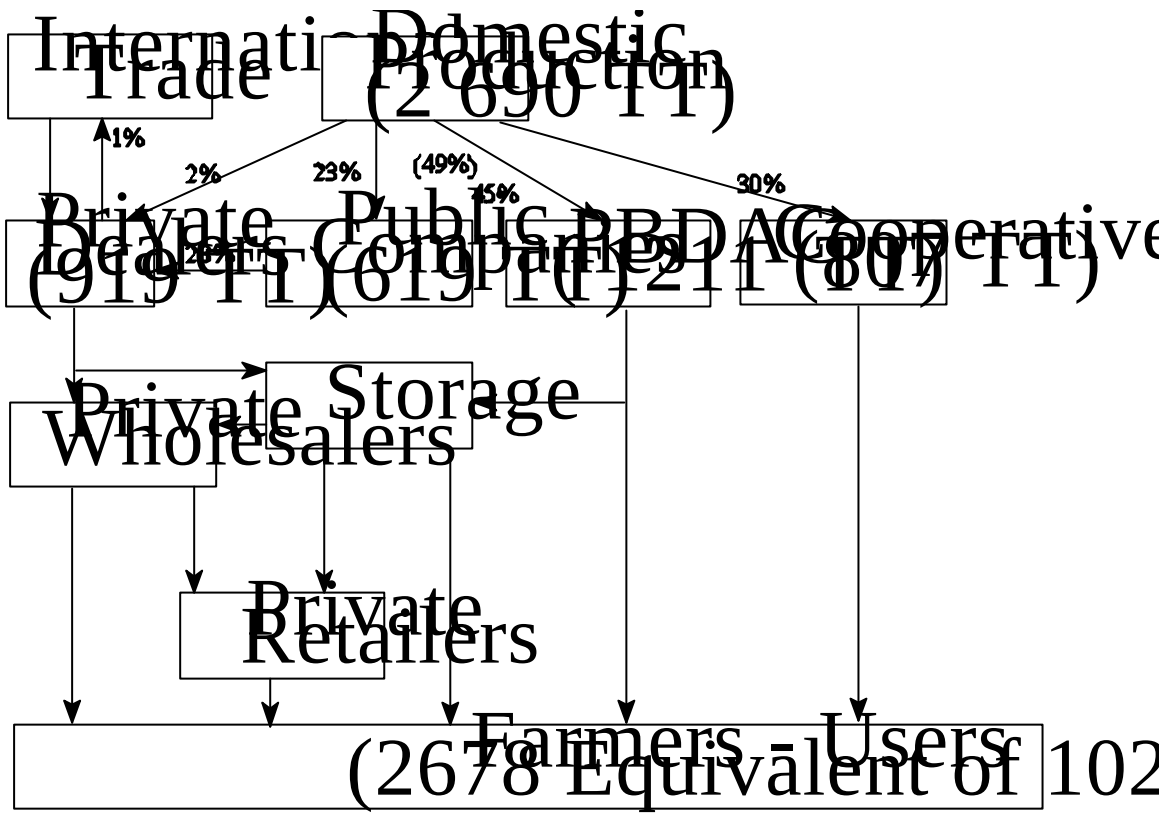
When PBDAC was formed in 1975, Government transferred all cooperative storage facilities to it. About 25% of PBDAC's present storage capacity of 4.2 million m^2 was formerly owned and controlled by the cooperatives (El Guindy et al, 1997). One m^2 is sufficient for storing one ton of fertilizer, which cannot be stacked high because of caking and breakage that would result.

In addition to PBDAC, the fertilizer producing companies have about 70,000 tons of their own storage, and dealers, another 100,000 tons. According to the IFDC study (1993), wholesalers have average sales of 680 tons a year and have storage for about a third of that. Retailers have little storage capacity, apart from their sales floors, but that amount, together with wholesalers, would probably add at least 20,000 tons in total. Additional storage can be rented from

PBDAC most of the time. Without PBDAC storage the private sector can probably store about 190,000 tons.

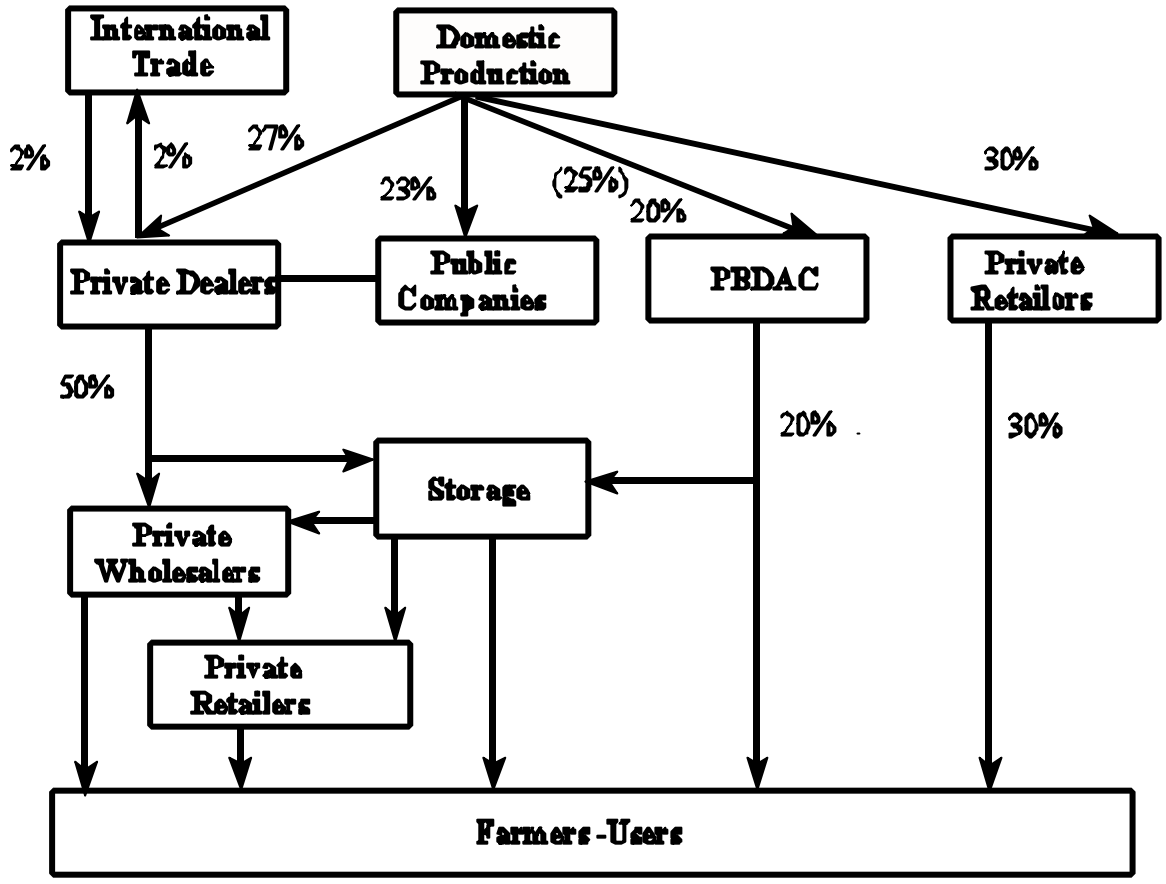
About 43% of dealer sales of nitrogenous fertilizer occurs in the three months of May, June and July. Factories can satisfy only about 25% of this out of current production. The lowest utilization is in the two months of September and October, where the monthly amount used does not reach 4% of the annual demand. During the remaining months, the rate of utilization is relatively stable, ranging between 6% and 8% of the annual amount used.

Chart 5: Distribution of Nitrogenous Chemical Fertilizers, August 1996 - July 1997



NB: The percentage in brackets shows Government policy, while the rest of the percentages are estimated actual market shares. TT : is thousand Tons.

Chart 6: Distribution of Nitrogenous Chemical Fertilizers: July - December 1997

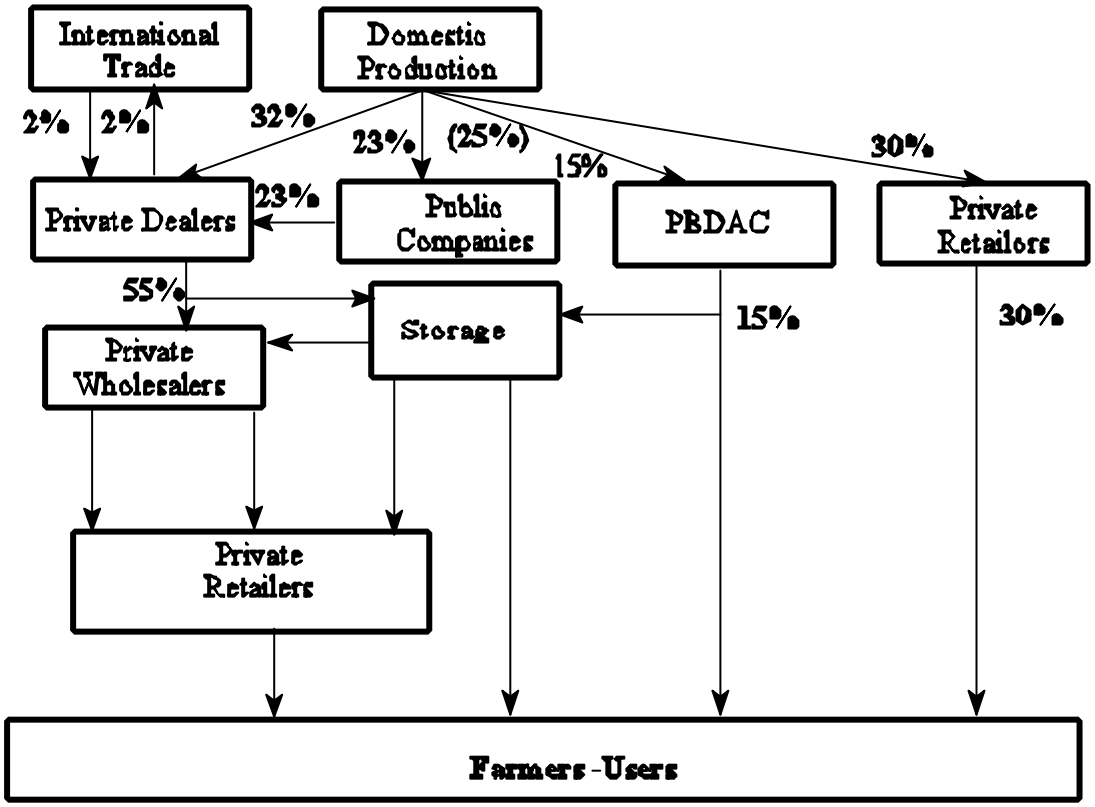


NB: The percentage in brackets is that of the government policy, while the rest of the percentages are actual.

There are distinct differences in the seasonal use patterns between the three main regions of Lower, Middle, and Upper Egypt and between the different types of fertilizers. These differences reflect the different cropping patterns between the regions. This adds to distribution difficulties and requires accumulating inventory to satisfy demand during periods of peak use. El Guindy et al. (1997) calculate there is a peak need for storage for about 240,000 tons of urea and 180,000 tons of ammonium nitrate if it is all to be supplied from domestic sources in a timely manner. These amounts are the difference between the monthly production and utilization, and represent about 23 percent and 12 percent of the actual 1996/97 production of urea and ammonium nitrate, respectively.

During most of the last several years, traders have been able to rent space from PBDAC to supplement their own space, as required. As its input supply functions wind down, PBDAC may be willing to return to the cooperatives the storage facilities it received from them in 1975, and auction surplus storage facilities to the private sector.

Chart 7: Distribution of Nitrogenous Chemical Fertilizers: January - June 1998



NB: The percentage in brackets is that of the government policy, while the rest of the percentages are actual

1.5 Duties, Taxes and Licenses

There is a 30% duty on imports of nitrogenous and phosphatic fertilizers from all countries except Lybia, Saudia Arabia and a couple of other Arab countries. There is a 10% duty on imports of potassic fertilizer. There is also a 5% sales tax, a 1% commercial tax and about 1% in other charges on all fertilizer imports and domestic sales. In addition, importers must get the approval of the Ministry of Agriculture for each import order, and pay a series of assessments amounting to 0.45% of the value of the imports. For exports there is a similar approval process.

Egyptian exports of chemical fertilizers are carried out by private dealers who perform other activities like fertilizer imports and distribution locally to private wholesalers and retailers. Even though the international trade is open to any private dealer, there are certain regulations that have to be followed in order to execute any transaction. With respect to imports, certain tariffs and fees have to be paid in order to get clearance from customs. Fertilizer imports from Some Arab countries, like Libya and Saudi Arabia are exempted from tariffs. However, with respect to exports, export permits have to be obtained from the Ministry of Agriculture and Land Reclamation. The issuance of such permits by the MALR has the main objective of assuring the

availability of certain amounts of chemical fertilizers as a minimum safeguard for the basic requirement for the agricultural sector. The issuance of these permits was once carried out the same day of submitting an application for export. Currently, there is a long time elapsing between the time of submitting the application and receiving the permit. This role is vested in a committee that holds a meeting once a month. Since the 1995 fertilizer crisis, there is no long-run plan for the quantities available for export. International trade requires long-run planning and contracting, which are not acceptable now for exporting the Egyptian nitrogen fertilizers. Even though there is international demand for the Egyptian fertilizers, but, exporters are not able to enter into long-term contracts, only very short-term ones. This results in a negative impact on the fertilizer exports. MALR should make at least annual plans for the expected fertilizer surplus to be exported which should be transmitted and released to all dealers working in the fertilizer subsector. This should be done as soon as possible with expected increase in the domestic production of nitrogenous fertilizers after completion of Abou Qir 3 and Misr Fertilizer company at Suez. As imports of fertilizers are currently free, this will balance out any deficit that might occur at any time, and this will eliminate the need for the MALR to issue export permits.

In addition to paying duties and taxes, all traders must be licensed by the locality in which their store is located. They must also get a separate license for fertilizer storage facilities. Traders using unlicensed space to store fertilizer, even on a temporary basis, are subject to fines and forfeiture of the fertilizer so stored. If the space is rented from another person, that person is subject to prosecution and fines as an unlicensed trader in fertilizer.

Income from fertilizer wholesaling and retailers is subject to income tax as well. Income is imputed as 12% of sales, regardless of the level of profit actually realized. This is greater than the entire margin for most traders. In effect, the income tax operates as a sales tax.

Table 1.5: Deliveries of El-Nasr Chemical Fertilizers to Different Agencies, (1996/97-1997/98) as a Percentage of Factory Production

Agency	Urea				Ammonium Nitrate			
	1996/97		1997/98 *		1996/97		1997/98 *	
	(000 MT)	%	(000 MT)	%	(000 MT)	%	(000 MT)	%
PBDAC	398.6	79	26.7	26	195.8	68	20.6	16
Cooperatives	26.7	5	11.4	1	33.9	12	21.8	17
Public Companies	20.6	4	1.6	2	34.1	12	3.4	3
Private Traders	58.3	12	64.3	62	24.6	9	81.4	64
Total	504.2	100	104.1	100	288.5	100	127.1	100

Source: El-Nasr Company.

* Until 31.1.1998.

Table 1.6: Deliveries of Abu Qir Fertilizers to the Different Agencies, 1991/92 to 1997/98, as a Percentage of Factory Production

Year	Urea					Ammonium Nitrate				
	PBDAC	Coops	Private	Pub.	Export	PBDAC	Coops	Private	Pub.	Export
1991/92	44	15	28	-	13	40	11	21	-	27
1992/93	3	22	71	-	4	3	14	60	-	23
1993/94	2	27	67	-	4	3	16	66	-	15
1994/95	2	24	51	-	23	1	15	53	-	31
1995/96	90	3	5	-	------	91	2	7	-	------
1996/97	42	30	------	25	------	44	29	------	22	4
1997/98	21	29	23	23	------	19	28	23	23	5

Source: Abu Qir Factory.

Table 1.7: Deliveries of Nitrogenous Fertilizers from Main Producing Factories to the Different Agencies, 1995/96 to 1997/98, as a Percentage of Factory Production

Year and Agency	El-Nasr	Abu Qir	El-Coke	Quema
1995/1996				
PBDAC	87.50	90.46	51.13	91.96
Cooperatives	1.28	2.43	29.89	0.62
Private Sector	5.57	5.88	13.22	6.60
Storage	5.65	1.23	5.76	0.82
1996/1997				
PBDAC	75.36	40.45	70.49	75.36
Cooperatives	7.24	29.46	4.33	7.24
Private Sector	10.42	0.00	0.0	10.42
Storage	6.98	30.09	25.18	6.98
1997/1998				
PBDAC	11.15	18.78	26.13	33.21
Cooperatives	7.98	28.18	10.72	5.87
Private Sector	49.00	47.42	42.87	44.79
Storage	31.87	5.62	20.28	16.13

Source: Fertilizer Bureau.

2. MARKET CONDUCT

Market conduct concerns how firms behave in markets, particularly those aspects of behavior that suggest restraint of trade or competition, or that fail to provide consumers with the quality and kind of services desired.

2.1 Erratic Government Policies

Normally, government policies would be considered part of market structure. But the rapid changes in, and unpredictable direction of, policies affecting the behavior of market participants, whether public or private, is perhaps the most significant impediment to a more rapid evolution of competitive, private sector participation in the fertilizer market in Egypt. A related conduct issue is how public enterprises and private companies with significant public sector participation behave in the market, especially toward private sector intermediaries. And finally, what is really a structural issue under this rubric, unnecessarily onerous licensing procedures, at both the local and national levels, create barriers to entry and significantly delay the ability of private sector traders to respond to market pressures in a timely manner.

There can be no doubt that, in spite of public statements to the contrary, many government and public officials do not trust, and have only a limited understanding of, how competitive markets operate. The focus is on who the actors are and not on what makes them behave the way they do; on what the short term profits (but not losses) are, and not on how those profits will affect competition and profits in the long run. The issue often seems to be not one of how consumers or private traders benefit, but which members of the private sector benefit. Though such concerns are certainly understandable in light of Egypt's history, they point to the need for on going vigilance on the part of APRP with respect to defining and monitoring benchmarks relating to the progress of policy reforms.

Certainly the best example of serious interference in the market by the Government was the response to the 1995 fertilizer crisis. Beginning in early 1995 fertilizer dealers were warning the Ministry of Agriculture of growing pressure on domestic nitrogenous fertilizer stocks that were resulting from high world market prices and related exports. Recognizing that the 30% duty, on top of already high prices for the fertilizer, would make nitrogenous fertilizer available to farmers only at prohibitive prices, dealers requested to be allowed to import nitrogenous fertilizer duty-free. This one act alone would have tied domestic and world market prices together in a way that would have prevented the shortage, though not the sharp increase in prices which mostly followed c.i.f. costs. Assuming that the MALR would not have allowed the factories to raise prices, at least private traders could have imported enough to offset excessive exports by government factories in search of maximizing their own profits. Mellor (1996) attributes the Government's lack of timely action to a failure to understand that the basic problem was one of a lack of supply.

The Ministry did not respond to these requests until two weeks after it reinstated the PBDAC monopoly on distribution of nitrogenous fertilizers at the beginning of August, 1995. By then prices had already doubled. It then took traders another two weeks to get the necessary licenses and complete the first phase of imports. One month elapsed between the reinstatement of the PBDAC monopoly and the arrival of the imports intended to relieve the shortage. During

this time PBDAC was building up its inventories which were near zero prior to August, giving farmers half ration until the pipeline could be stocked. Much of this shortage was never made up. Farmers simply used less fertilizer and had less output.

El Guindy et al.(1997) demonstrate that the crisis was already past by the time MALR acted. In fact, the reinstatement of the PBDAC monopoly made the problem worse. Private sector inventories were already drawn down, indicated by the doubling of prices for fertilizer in retail markets during August. By first having to build its own inventories, PBDAC effectively withdrew over 100,000 tons from factory production made available during August. Not until September did prices begin declining as imports arrived, factories resumed operations and seasonal demand for fertilizer abated. It is significant that the amount of excess inventories at PBDAC at the present time represents a significant proportion of the 1.2 million tons that were imported into the domestic market in late 1995 and early 1996 to satisfy a demand that had already passed. Those stocks cannot be eliminated until someone exports or discards that redundant supply, or the factories stop producing.

As a result of these actions fertilizer dealers suffered substantial losses, first because they suddenly faced a sharp reduction in sales in the face of operating and fixed costs intended for a larger volume of sales; second, because they ended up importing when world prices were high but had to sell a large portion of these imports in competition with adequate local production costing 40% less. This experience has made private dealers reluctant to invest in storage, blending and other aspects of their businesses as PBDAC once again is in the process of withdrawing from the market.

The factories suffered too. The loss of reputation as a result of being forced to cancel international contracts will make it difficult to reestablish export markets once domestic production exceeds domestic demand at the end of this year, when domestic producers will be forced to export or scale back production.

2.2 Favoritism

Collusion is when private producers and traders conspire to restrain trade in a way that increases their own profits. Favoritism and cronyism arise when public or semi-public institutions conspire to restrain trade in a way that increases someone else's profits, presumably for some sort of institutional or indirect personal gain. We lump the three together here because it is not always possible to attribute the source of the restraint of trade to a clear public or private source. All three may be involved.

The manner in which the private sector has been allowed to return to the nitrogenous fertilizer market provides an example of how favoritism and cronyism interfere with development of a competitive, efficient, low-cost private sector fertilizer distribution system. Beginning in August, 1996 MALR began allowing the private sector to purchase fertilizer directly from producers. But it continued to reserve a portion for PBDAC even though PBDAC already had excessive inventories. PBDAC needed fresh fertilizer to help it move its older stocks which were in poor shape because of poor inventory management and poor storage practices (El Guindy, 1997).

In late 1996, when Abu Qir stopped shipping to PBDAC because of a dispute over a price increase, the Ministry directed Abu Qir to give part of PBDAC's quota to selected public trading companies. These companies were not involved in fertilizer distribution at all, but needed an infusion of cash to cover their regular operations. Because farmers have a strong preference for fertilizer from Abu Qir, it commands a premium in the marketplace. Since Abu Qir cannot, for political reasons, raise prices to capture this scarcity value, the Ministry chose to give it to the public trading companies instead of to private sector companies already involved in fertilizer distribution. These public trading companies began drawing about 25% of Abu Qir's production, even though they perform no service other than transferring their quota to private dealers for a 2-5% commission. This rent would not exist but for the factory's inability to raise prices.

In June, 1998, the Ministry intervened again on the part of special interests when it shifted 15% of PBDAC's remaining 25% allocation to a private company consisting mostly of PBDAC managers and a private fertilizer dealer, with PBDAC itself holding a 24% share. The significance of the 24% share is that companies that have 25% or more public ownership must be audited by the Public Auditor.

The existence of an economic rent on Abu Qir fertilizer continues because of other policies that discourage adequate off season storage to cover peak season demand. The private sector does not have sufficient storage by itself. Dealers, traders and wholesalers must rent space from PBDAC. For a while PBDAC rented space to private traders and merchants at what some observers argue is about twice the cost of building new storage (LE 4/m^2 versus LE 2-2.5/m^2). If true, this adds 6-8 LE/ton to storage costs, over half of the total commission which the public trading companies are extracting from traders. We should mention that others involved in renting out fertilizer storage space say that LE 4 is a more accurate measure of actual costs than LE 2.

More recently, PBDAC is requiring farmers wanting credit to take 50% as fertilizer in kind to help liquidate its own stocks, whereas the average amount of PBDAC credit normally used to purchase fertilizer is only 35%. According to some traders PBDAC is also refusing to rent storage space to private traders in order to stimulate demand for its stocks, although people familiar with PBDAC deny this is occurring.

By restricting storage capacity for private traders PBDAC is ensuring a shortage of fertilizer from the private sector during the peak demand season that will help it unload its unwanted inventory. In addition, by forcing farmers to take more fertilizer than they can use, PBDAC is effectively forcing them to sell the unwanted fertilizer at a discount in the local market in order to raise cash for other needed inputs. This conduct allows PBDAC to draw down its inventories more aggressively. Farmers are paying the cost of these policies in the form of a higher cost of credit and poor quality fertilizers. This leads to higher costs and/or reduced agricultural production.

Why don't private traders rent space from elsewhere? Recall that the process for licensing storage space to take fertilizer is lengthy, longer than the amount of time the fertilizer needs to be stored in the first place. Moreover, PBDAC will give commercial credit for fertilizer inventories only if the fertilizer is stored in PBDAC facilities. Traders who use private storage must bear the full cost of financing that inventory. As hard as it is to believe, it appears that Egypt does not have a system of commercial credit for agriculture, apart from PBDAC, that can provide seasonal credit

for large purchases of fertilizer. Mellor (1996) mentions that traders complain that commercial banks will not give them credit. Others say this is nonsense. Obviously, this is an empirical question that USAID may want to explore. In any case, the persistence of the economic rents that public trading companies can extract from their fertilizer quota arises from somewhere. High storage costs and the absence of a competitive commercial credit system for seasonal agricultural credit provide a logical explanation.

There are indications, but no proof, of collusion between the factories and dealers to restrain competition between dealers and between dealers and wholesalers. Many dealers lament their inability to get a quota from Abu Qir factory. Abu Qir insists it uses commercial criteria for selecting dealers. Some large dealers dispute this, indicating that interference by MALR can produce a contract. There is evidence of this occurring. Moreover, one dealer described the need for orderly markets, arguing that selling to smaller wholesalers undercuts the dealers' margins because the smaller wholesalers sell at a lower price. This would suggest the existence of collusion to restrain trade and increase profits. The problem should decline in the future, however, as Abu Qir III comes on line at the end of this year and the factory expands the number of dealers in order to sell as much as possible to the higher priced domestic market.

2.3 Pricing and Trade Decisions

According to the factories, they are free to reduce prices, but not increase them. This inability to increase domestic prices in order to retain adequate domestic supplies was the direct cause of the 1995 crisis. By government policy, pricing and foreign trade decisions are separated from each other, requiring administrative intervention rather than relying on market signals for integration.

In 1998 two traders have begun importing fertilizer from Lybia, and another is considering imports from Saudi Arabia. These two countries are exempt from duties on fertilizer. If these imports continue in the face of world prices below domestic prices, then we can expect that the private sector will force local fertilizer producers to reduce their ex-factory prices to c.i.f. plus a small margin, thereby establishing the missing link between domestic production and world prices. Producers who do not lower their prices will be forced to carry high inventories or export their fertilizer at even lower prices, unless the Government intervenes or producers reduce output.

Apart from price rigidities induced by high import duties on fertilizer, available evidence indicates that the factories are quite aggressive in adapting to the political and market conditions in which they find themselves. Both Abu Qir and SEMADCO are aware that they must export what they cannot sell, and that they can improve returns by aggressively pricing their products. However, at the present time, because the price reductions are selective and not universal, reductions for traders who do not store only reduce revenue because supplies in the market during the peak season are limited by the storage policies of PBDAC vis-a-vis private traders. Only by increasing storage can the factories increase the proportion of their output sold at higher domestic prices during the season of peak demand for fertilizer.

Storage problems can only persist as long as the normal weekly production capacity of the factories cannot meet peak weekly demand. Over the long run, adequate storage by anyone other than the producers will require much lower ex-factory prices for fertilizer during the off season in

order to cover the costs of storage until the peak season. If these lower prices are made available to all distributors equally, none of them will be able to profit by immediately selling quantities intended for storage at a high current price. The only way to get the high price would to hold until the peak season. Past efforts by the producers to get dealers to increase amounts in storage have been ineffective, largely because the discounts intended to cover storage costs have been made available to only a few traders, and have been too small to cover the full cost of storage.

If the factories succeed in adding to storage, they will make PBDAC's inventory problem worse. Until PBDAC's inventories are reduced, one market participant's gain will be another's loss. After they are reduced, there will still be a need to address the issue of links between domestic and foreign prices, and whether and how to maintain domestic stability for fertilizer prices in the face of fluctuating world prices and fluctuating domestic prices for output.

2.4 Investment Decisions

Private dealers are actively weighing several investment projects that promise to increase competitiveness and quality in local fertilizer production and marketing. Two companies are considering bulk blending operations, and one is expanding extension and training services for its dealers in the use of such fertilizers. Some are considering additional investment in storage. In all cases, the companies express fear that government policy will change again after they have made the investment.

3. MARKET PERFORMANCE

3.1 Timeliness of Supply

According to surveys conducted by IFDC (1993) prior to 1995, the private sector was doing a good job of supplying the local market with adequate supplies of fertilizer in a timely fashion. The one exception to this was the fertilizer crisis of 1995. Available evidence suggests that the crisis arose largely because warnings of an impending shortage to the Ministry of Agriculture by private fertilizer dealers, made as early as January, 1995, went unheeded. Several dealers warned the Ministry that stocks were getting dangerously low, as local manufacturing companies, all public companies at that time, increased fertilizer exports to profit from high international prices. Traders requested permission to import fertilizer duty-free so that farmers would be assured of supplies at prices not too far above the ex-factory prices then prevailing. The Ministry did not respond to this request until two full weeks after all domestic production of nitrogenous fertilizers was designated for PBDAC.

3.2 Ex-Factory Prices

Before the beginning of legal private sector participation in the marketing of chemical fertilizers, fertilizer prices were kept fixed over long periods of time at subsidized levels with few upward revisions. Prior to 1988 ex-factory prices were administratively fixed with little regard for world market prices. Prices were gradually raised between 1989/90 and 1992/93, in parallel with the gradual reduction in production and distribution subsidies. By 1992/93 the subsidies on all but potassium sulfate had been eliminated. Since then ex-factory prices have hardly changed.

World prices of fertilizer are another story altogether. Mostly stable over the period that domestic prices were rising in response to the removal of subsidies, they rose sharply in 1994/95, then just as sharply, fell in late 1997. In July, 1998 c.i.f. prices of urea were more than 20% below domestic ex-factory costs.

As price pressures build in the local market because of high inventories and low world market prices, and as factories get more experience with managing their markets, producers have become more aggressive in granting discounts and absorbing returns in an attempt to preserve their market share. Both Talka and Abu Qir give discounts to their largest dealers as an incentive to store fertilizer. Talkha allows wholesalers and dealers to return fertilizer in bad condition for full credit if they pay only the cost of transport to the factory. This option is not given to PBDAC, however. The stated reason is that PBDAC does not pay sufficient attention to inventory management and the quality of its storage facilities. But it has also been reported that Talkha stopped adding conditioners to its fertilizer once it was required to deliver it all to PBDAC. This reduced its storage life. Thus PBDAC fertilizer may be in worse shape than supplies shipped since the market has opened up again. We are under the impression that conditionners are being added once again.

Table 3.1: Ex-Factory Prices of Nitrogenous Fertilizers

(LE/mt)

Year (July/June)	Urea (46.5 %)		Ammonium Nitrate (33.5 %)			
	Abu Qir	Talkha	Abu Qir	Talkha	Kima	El-Coke
1990/91	2.8e+20	251	-------	197	242	2.8e+20
1991/92		400	380	263	298	
1992/93		441	395	345	339	
1993/94		431	370	330	370	
1994/95		433	370	330	370	
1995/96		441	399	343	399	
1996/97		495	399	380	385	
1997/98						

Source: Holding Company for Chemicals and Fertilizers.

It is pretty obvious that the selective granting of discounts to encourage storage is not a very effective policy. Because the price is reduced to only selected dealers, they have an incentive to not hold the stock but to simply to use the discount to add to their margins by selling it immediately in the market. This would be especially true of small dealers. Only when all dealers receive such discounts, and they are large enough to cover the cost of storage, will such incentive to turn over stocks be completely eliminated. In that way both the wholesale and retail prices would be lower during the slack season, forced down by those dealers who decide to sell immediately. The only way to get the higher price would be to hold the fertilizer until the peak season. Then farmers as well as traders would have an incentive to store. This assumes that the factory would be allowed by the Government to increase its prices during the peak season, relative to the slack season. It is not clear that, in practice, they are free to do so.

3.3 Nominal Protection Coefficients

The Nominal Protection Coefficient (NPC) shows the extent of protection of local production. It is defined the ratio of the domestic f.o.b. price to the border or c.i.f. price for a domestically produced commodity. Table 3.2 shows the NPC for urea and ammonium nitrate at the port of Alexandria, using average c.i.f. prices that producers reported prevailed in those years. Ex-factory prices are adjusted for handling and transport costs to get the f.o.b price to compare with the c.i.f. price for imports.

During the period from 1990/91 to 1996/97 the NPC for urea fluctuated between 0.53 and 0.94, indicating the domestic price was always lower than the c.i.f. price. These fluctuations were mainly due to changes in c.i.f. prices, as domestic prices showed little change during much of this period.

By late 1997 the situation began reversing, as world prices began dropping as part of a normal cyclical pattern, reinforced by a sharp drop in demand for petroleum products as a result of the Asian financial crisis. As of May, 1998 prices for nitrogenous fertilizers in Egypt exceed world market prices by about 40%.

Expectation in the fertilizer industry seems to be that recovery from the problems in Asia will be slow and petroleum and nitrogenous fertilizer prices will not recover as quickly as they have in previous cycles. If so, Egypt may be in for a long period of low export prices for nitrogenous fertilizers. What has heretofore been a long period during which farmers received implicit subsidies on fertilizer, indicated by the low NPCs, may turn into a prolonged period during which fertilizer users will be taxed implicitly.

Table 3.2: Border Prices and Nominal Protection Coefficients For Urea

(LE/mt)

Year	Domestic fob Price	Border cif Price	NPC
1990/91	273.03	510.84	0.53
1991/92	417.88	505.13	0.83
1992/93	452.43	500.17	0.90
1993/94	443.69	470.93	0.94
1994/95	444.58	732.24	0.61
1995/96	476.04	787.99	0.60
1996/97	502.57	688.78	0.73

In light of this outlook, now is an excellent time for Egypt to review its policy of keeping ex-factory prices for fertilizer relatively stable. Prices for output have already been, for the most part, free to move with world prices. Allowing input prices to fluctuate with them will, in most cases, stabilize aggregate farm income better than holding one of the two fixed while the other is flexible.

Failure to link domestic fertilizer prices to world market prices was a key cause of the 1995 fertilizer crisis. The shortage arose because high world prices provided an incentive to export for producers and traders, while a relatively low, fixed ex-factory price provided a disincentive for the plants to provide for the domestic market. At the same time, the high duty on imports only added to the risk faced by traders who gave some thought to importing when c.i.f. prices were 50% above fixed ex-factory prices.

The situation was not so acute for ammonium sulfate as for urea and ammonium nitrate. The duty for ammonium sulfate is only 10%, as the country normally imports the bulk of its needs. With a narrower spread between domestic and imported ammonium sulfate, including the duty, importers faced less risk in the event of a decline in world prices or a restored domestic supply following a large importation.

3.4 Retail Prices

Between PBDAC, cooperatives and private traders, retail prices for nitrogenous fertilizers vary according to the time period and the marketing channel utilized in distributing fertilizers to farmers. In a field survey undertaken by the Ministry of Agriculture and Land Reclamation in the summer of 1995 and the winter of 1995/96, the retail price of PBDAC for urea was the lowest in both seasons, with private sector prices 85% to 96% higher, and cooperative prices 0.2% to 8.8%

higher. The retail price of PBDAC for ammonium nitrate in the summer of 1995 was the lowest, with the private sector price 67% higher, and that for the cooperatives, was 9.7% higher.

In the winter of 1995/96, things did not change much. The price of ammonium nitrate was the lowest at the cooperatives, with the price of the private sector 84% higher and that of PBDAC 1.5% higher, as indicated in Table 3.3. Recall that this was the period when the Government directed all local production of nitrogenous fertilizers to PBDAC because of a shortage. The private sector had to resort to more expensive imports or obtain local production through informal channels. The scarcity did not quickly abate because PBDAC was building its inventories at a time when local production could not, by itself, satisfy local demand while such stock piling was occurring. In such context traders could make a good profit on imports even though c.i.f. costs were 65% higher.

The fact that PBDAC fertilizer was considerably cheaper than fertilizer from the private sector at this time doesn't mean that PBDAC is more efficient. It was getting its supplies at below the world market prices being paid by private traders, and if does not have to account for all of its costs of storage and distribution. It may even have been losing money on its sales. There is no way of knowing without doing a comprehensive cost accounting for those sales.

By 1997 the situation had changed dramatically. In a cotton marketing field survey undertaken by MVE of the APRP for the 1997 cotton season, the results indicate that the price of urea from the cooperatives was the lowest, with price of the private sector and public sector (PBDAC) 10.9% and 1.8% higher respectively. For ammonium nitrate, the prices of PBDAC and cooperatives were similar, with private sector prices 8.7% higher, as indicated in Table 3.4. The price of the private sector was higher than the price of the cooperatives or PBDAC, but much less so than in late 1995. This probably reflects increased competitiveness in 1997 versus 1995 as the PBDAC monopoly had diminished in the face of growing inventories nationwide.

Table 3.3: Prices Paid by Egyptian Farmers for Fertilizers

(LE/50 kg)

Market Channel	Urea Summer 1995	Ammonium Nitrate Winter 1995/96
PBDAC	25.29	26.66
Cooperatives	27.52	26.72
Private Traders	49.66	49.27
Average	45.84	32.37

Source: Field Survey, Economic Affairs Sector, Ministry of Agriculture and Land Reclamation.

Table 3.4: Retail Prices for Cotton Fertilizers, Average for Egypt - 1997 Season

(LE/50kg.)

Market Channel	Urea	Ammonium Nitrate
Public Sector	28.00	23.00
Cooperatives	27.50	23.00
Private Traders	30.50	25.00

Source: MVE - APRP, Cotton Field Survey.

From Tables 3.3 and 3.4 it is clear that the retail price for nitrogenous fertilizers distributed by the private traders is higher than for fertilizer distributed either by PBDAC or the cooperatives. One reason for this difference is that a significant share of overhead and operating costs for both PBDAC and the cooperatives are financed through the government budget. Therefore, the difference in retail prices presented in these tables should not be taken as a measure of efficiency, competitiveness or performance. For an accurate comparison, estimates of the costs related to the fertilizer activities within PBDAC or the cooperatives, including fertilizer-related costs financed from the government budget, would have to be made. This is a time-consuming task that involves making a whole series of dubious assumptions. It needs to be done only if PBDAC threatens to maintain a significant presence in the market, something that does not seem likely at this juncture. In any case, as a later section shows, even though prices for private sector traders were higher in 1997, their margins were actually lower than for both PBDAC and the cooperatives for most products.

3.5 Farmer Preferences for Market Channels

A producer survey conducted by MVE (Fawzy, 1998) following the 1996-97 crop year found that most farmers prefer buying their fertilizer from the village agricultural cooperative. The preference of farmers with respect to the different market intermediaries was as follows:

Source of Fertilizer	Urea	AN
Cooperatives	61.0%	61.0%
PBDAC	9.8%	12.6%
Private Dealers	20.2%	22.0%

Price and availability are major issues according to surveys. The reason most cited for this preference for cooperatives and PBDAC was their lower price. Note that this survey was undertaken before the changes in 1997 giving the private sector a share of local factory production.

3.6 Marketing Margins

Marketing margins for distributing locally produced chemical fertilizers vary between the different regions of the country. The two main factories producing nitrogenous fertilizers are located in the northern part of the country. The El-Nasr factory is located in the middle of the Damietta branch of the Nile Delta, and Abu Qir factory is located on the extreme northern border,

at Alexandria, very close to natural gas fields. Transportation costs and taxes represent the biggest share of marketing costs.

Table 3.5 reorganizes data on marketing margins produced in El Guindy et al. (1997) in order to facilitate the comparison of marketing margins between PBDAC, the coops and private traders. The table looks at margins in two ways. One includes all costs from the ex-factory price to the ultimate farmer price, ex-depot. This would be at the depot door for PBDAC and the coops, but might be up to the farm gate for private traders since some of them sell fertilizer from trucks and include delivery in the price. The second measure of margin includes only those costs over which the intermediary has any control. It excludes what the authors call marketing costs, since these represent taxes and transport costs that are charged to the intermediaries by the factories. Removing transportation costs is important because the amount depends on location rather than the type of market intermediary. In addition, commissions paid to public trading companies by private traders are not included in the traders' cost margin since that is also a cost over which the traders have no control.

Table 3.5: Marketing Margins for Selected Fertilizers, by Market Channel and Region, July, 1997

(LE/MT)

		Abu Qir Urea			Talkha Urea			Talkha Ammonium Nitrate			Abu Qir Ammonium Nitrate			Suez Ammonium Nitrate		
				Private			Private			Private			Private			Private
		PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector
Ex-Factory Price		**475**	**495**	**495**	**470**	**495**	**495**	**360**	**380**	**380**	**399**	**399**	**399**	**380**		**390**
Lower Egypt																
Sales Tax	5.0%	23.8	24.8	24.8	23.5	24.8	24.8	18.0	19.0	19.0	20.0	20.0	20.0	19.0		19.5
Commercial Tax	1.0%			5.0			5.0			3.8			4.0			3.9
Tonnage Charges	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5
Non-AQ Tonnage Chg	2				2.0	2.0	2.0	2.0	2.0	2.0				2.0		2.0
Transport	17.6	17.6	17.6	17.6	15.0	17.6	15.0	15.0	7.5	15.0	17.6	16.5	17.6	20.0		20.0
Taxes & Transport		42.9	43.9	48.8	42.0	45.9	48.2	36.5	30.0	41.3	39.1	38.0	43.0	42.5		46.9
Public Trading Co. Comm.				15.8			-1.2			0.7			12.6			-2.9
Public Trading Co. Sale Price				559.6			542.0			422.0			454.6			434.0
Other Costs & Charges		40.2	31.2	21.0	44.0	29.2	20.0	39.5	30.0	13.0	37.0	43.1	20.0	47.5		14.0
Ex-Depot/Ex-Store Price		558	570	580.6	556	570	562	436	440	435	475	480	474.6	470		448
As % of Ex-Factory Price																
Total Margin		17.5%	15.2%	17.3%	18.3%	15.2%	13.5%	21.1%	15.8%	14.5%	19.0%	20.3%	18.9%	23.7%		14.9%

		Abu Qir Urea			Talkha Urea			Talkha Ammonium Nitrate			Abu Qir Ammonium Nitrate			Suez Ammonium Nitrate		
				Private			Private			Private			Private			Private
		PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector
Other Costs & Charges		**8.5%**	**6.3%**	**4.2%**	**9.4%**	**5.9%**	**4.0%**	**11.0%**	**7.9%**	**3.4%**	**9.3%**	**10.8%**	**5.0%**	**12.5%**		**3.6%**
Middle Egypt																
Sales Tax	5.0%	23.8		24.8	23.5		24.8	18.0		19.0	20.0		20.0	19.0		19.5
Commercial Tax	1.0%			5.0			5.0			3.8			4.0			3.9
Tonnage Charges	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5		1.5
Non-AQ Tonnage Chg	2				2.0		2.0	2.0		2.0				2.0		2.0
Transport	26.4	26.4		26.4	20.0		20.0	20.0		20.0	26.4		26.4	35.0		35.0
Taxes & Transport		51.7		57.6	47.0		53.2	41.5		46.3	47.9		51.8	57.5		61.9
Public Trading Co. Comm.				15.8			-1.2			0.7			12.6			-2.9
Public Trading Co. Sale Price				568.4			547.0			427.0			463.4			449.0
Other Costs & Charges		40.4		21.0	49.0		20.0	44.5		18.0	37.2		20.0	32.5		14.0
Ex-Depot/Ex-Store Price		567		589.4	566		567	446		445	484		483.4	470		463
As % of Ex-Factory Price																
Total Margin		19.4%		19.1%	20.4%		14.5%	23.9%		17.1%	21.3%		21.2%	23.7%		18.7%
Other Costs & Charges		**8.5%**		**4.2%**	**10.4%**		**4.0%**	**12.4%**		**4.7%**	**9.3%**		**5.0%**	**8.6%**		**3.6%**

		Abu Qir Urea			Talkha Urea			Talkha Ammonium Nitrate			Abu Qir Ammonium Nitrate			Suez Ammonium Nitrate		
				Private			Private			Private			Private			Private
		PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector	PBDAC	Coops	Sector
Upper Egypt																
Sales Tax	5.0%	23.8		24.8	23.5			18.0			20.0		20.0	19.0		
Commercial Tax	1.0%			5.0									4.0			
Tonnage Charges	1.5	1.5		1.5	1.5			1.5			1.5		1.5	1.5		
Non-AQ Tonnage Chg	2				2.0			2.0					0.0	2.0		
Transport	37.4	37.4		37.4	48.0			48.0			37.4		37.4	50.0		
Taxes & Transport		62.7		68.6	75.0			69.5			58.9		62.8	72.5		
Public Trading Co. Comm.				15.8									12.6			
Public Trading Co. Sale Price				579.4									474.4			
Other Costs & Charges		39.4		21.0	30.0			26.5			37.2		20.0	17.5		
Ex-Depot/Ex-Store Price		577		600.4	575			456			495		494.4	470		
As % of Ex-Factory Price																
Total Margin		21.5%		21.3%	22.3%			26.7%			24.1%		23.9%	23.7%		
Other Costs & Charges		**8.3%**		**4.2%**	**6.4%**			**7.4%**			**9.3%**		**5.0%**	**4.6%**		

When examined in this way, by the same type of product from the same source, the data provide a different picture of margins. Not only are private traders' selling prices generally higher, but their cost margins are lower for all products and locations examined, generally less than half as much as the margins of PBDAC, when expressed as a percentage of the ex-factory price. Ranging between 3.5 and 5%, they are quite modest by international standards, according to examples cited in the 1993 IFDC study.

The results of Table 3.5 are only indicative. The data sets are not entirely comparable. For cooperatives all costs and prices were provided by the cooperative themselves. For the public trading companies, selling prices are those reported as being paid by the private dealers who buy from them. In some cases, such as for Talkha urea, this produces a negative commission. The ex-factory price plus taxes and transport are greater than the reported public trading company selling price. For PBDAC and private traders, retail prices were gathered from informal surveys at the village level. The latter, no doubt, contain a considerable amount of sampling error. In all cases the component costs are based on what the authors of the study knew were involved, or on averages across several respondents, not on costs actually reported as paid by the respective market intermediaries.

With this type of methodology, the error involved in estimating marketing margins is too large in relation to the margins themselves to engender confidence that any differences revealed the next time such an analysis is done will be real differences, as opposed to measurement error. Nonetheless, for evaluating relative differences at one point in time, the methodology is suitable.

Using marketing margins as a potential measure of efficiency or performance presents other measurement problems. Because PBDAC and the cooperatives are partially subsidized by the Government, their margins are lower than would prevail under full cost pricing. However, other costs, such as redundant employment, drive up PBDAC's marketing costs. Because of this, even though the Bank does not pass on all of its costs to farmers, one can not say with certainty that its marketing margins present unfair competition for the private sector. If they do, and are too low, then removing PBDAC from the market will result in higher prices for fertilizer at the farm level and an expansion of private trader margins as they price in all of their costs plus a normal profit. Unfair competition is, quite frankly, the most common way the private sector is prevented from operating, or at least thriving. In such a case what will be happening is not price gouging by the private sector, but substitution of private sector costs (including a normal profit) for what are now indirect public sector subsidies via absorbing part of the costs of PBDAC and the coops into the public sector budget. Removing subsidies will almost always increase prices in such a situation. The margins will increase; but that will indicate progress rather than a loss of competitive efficiency.

Given all of these problems and the imprecision with which margins can be measured even with a very substantial sample survey, marketing margins should be used as a qualitative indicator, not as a quantitative one.

4. PROJECTED DEMAND

Demand for fertilizer depends on several factors:

- Cultivated area
- Cropping pattern and crop rotation.
- Production technology.
- Cultural practices, including seeding, and irrigation techniques.
- Application of new and high yielding varieties.
- Prices for fertilizer and other inputs
- Output prices

Estimates of future consumption of fertilizer in Egypt have been made using both a requirements approach and a demand approach; it is not surprising that they arrive at somewhat different conclusions.

Using crop requirements the Ministry of Public Enterprises (MPE) projects an increase from 945,000 tons of nitrogen (6.1 million tons 15.5% N equivalent) in 1995/96 to 1.13 million tons (7.3 million tons of 15.5% N equivalent) in 1999/2000. This implies a growth rate of 4.6 percent annually.

Mellor (1997) disputes these estimates, arguing that consumption in 1995/96 could not have been 945,000 tons of nitrogen, based on relatively stagnant utilization levels during the prior several years. He also disputes that use can grow 4.6% per year given the very high levels of fertilizer already being applied. He estimates that demand for nitrogen will increase from 850,000 tons of nitrogen (5.5 million tons of 15.5% equivalent) in 1995/96 to 900,000 tons (5.8 million tons of 15.5% equivalent) in 1999/2000, implying a growth rate of only 1.6 percent annually. Magdy El Guindy et al. (1997) see similar growth, at 1.3% annually, to 2005-06, also for nitrogen. Estimates made by El Nasr Company for the 1997/98 agricultural year, described in the next table, come closest to those of MPE. Part of the difference between these estimates arises from allowances made for the amount of new lands to be developed.

Table 4.1: Nitrogenous Fertilizer Use, 1997/98 as Estimated by El Nasr Company

Type of Land	Cropped Area (1000 feddan)	N. Fertilizer (1000 tons)
Old land	12068	5081
New land	2660	1542
Total	14728	6623

Whatever projection of demand is used, they all indicate that domestic production is about to exceed domestic utilization, both for nitrogenous and phosphatic fertilizers. Over the last three years, on a nutrient basis, domestic production exceeded domestic utilization of nitrogenous

fertilizers every year, even in 1995 when the fertilizer crisis occurred. However, by product, there were deficits of 22,600 tons of urea and 18,400 tons of ammonium sulphate in 1994/95, and a surplus of about 78,400 tons of ammonium nitrate, as indicated in Table 4.2. The same table indicates that the surplus in recent years has been large: 370,900 tons of 15.5% N equivalent in 1996/97. By the year 2000/2001, with additional capacity now under construction, total production would be 13.5 million tons, assuming 90% capacity utilization. Even with the most optimistic estimates of nitrogenous fertilizer requirements (MPE study, 7.6 million tons of N equivalent by 2000/2001), there will be an expected surplus of 5.9 million tons of 15.5% N equivalent. The surplus will be larger if demand stabilizes around 6.1 million tons. This presents opportunities for export since Egypt has a comparative advantage in the production of nitrogen fertilizers arising from its relatively low price for natural gas.

During the last few years, many countries have reduced the level of application of chemical fertilizer as an environmental measure, without an adverse effect on yields. At the same time, international markets for Egyptian truck crops have become more restrictive with respect to quality and chemical residues. In many European countries now, as in the United States, importers require biological control of insects. Therefore, one can assume that the rate of application of chemical fertilizers in Egypt will, at best, remain stable for a number of years on the old lands. On the other hand, the great expansion of land reclamation and cultivation projects in the new lands will provide a new source of demand that should keep overall consumption rising modestly for years to come.

Table 4.2: Production, Utilization and the Balance of Nitrogenous Fertilizers in Egypt: MALR Estimates

(1000 tons)

Item	1994/95	1995/96	1996/97
Urea 46.5 %:	916.7	1046.7	1040.9
Production	939.3	958.5	978.0
Utilization	- 22.6	+ 88.2	+62.9
Balance			
Ammonium Nitrate (33.5%):	1494.9	1578.2	1557.1
Production	1416.5	1445.4	1474.9
Utilization	+ 78.4	+ 132.8	+82.2
Balance			
Ammonium Sulphate (20.6 %):	67.3	77.6	92.6
Production	85.7	87.4	89.2
Utilization	- 18.4	- 9.8	+ 3.4
Balance			
Total 15.5 % N. Equivalent:	6070.0	6654.2	6611.1
Production	5993.4	6115.6	6240.2
Utilization	**+ 77.6**	**+ 538.6**	**+ 370.9**
Balance			

Source: Ministry of Agriculture and Land Reclamation.

5. OVERALL ASSESSMENT AND OPPORTUNITIES FOR IMPROVEMENT

Certain forces are in motion that, if left alone, may very well do much of what needs to be done with respect to liberalization of fertilizer distribution. Fertilizer production may require greater perseverance.

5.1 Competitive Markets Are on The Way

As long as world prices for fertilizer remain below domestic prices the impending increase in capacity of both nitrogenous and phosphatic fertilizer production should eliminate the rent value associated with Abu Qir fertilizer and increase the incentive for producers to create as wide a distribution network as possible in order to maximize domestic sales. There will no longer be a reason for PBDAC to be involved in fertilizer distribution, and without subsidies, it will not be able to compete. The recent availability of duty-free imports of urea from Lybia, and possibly Saudi Arabia, creates a direct link between domestic ex-factory prices and world market prices that will be difficult to avoid. Given that the prognosis is for a prolonged period of low prices for natural gas, the time is ripe for introducing policy changes that promise to maintain these links once prices return to longer-run levels.

There is a clear need to reestablish the distribution system that existed prior to 1995 as soon as possible. If Government wishes that PBDAC continue distributing fertilizer, then the Government should use full-cost pricing for setting producer prices. There may be a need to keep an eye on the pricing policy of cooperatives as well, to ensure they do not become another source of subsidized inputs via indirect operating subsidies from the Government.

The actions required to maintain the momentum include protecting duty-free imports from selected Arab countries, ensuring access to domestic production on commercial, not political terms, and monitoring how domestic production is distributed to ensure the private sector has equal access on commercial terms between private sector participants.

5.2 Complete Producer Control Over Ex-Factory Prices

Fertilizer producers need greater control over ex-factory prices. In the short run they must be free to give discounts sufficiently large to cover storage costs, and they will increase their success rate by making these discounts widely available. In the longer run, once domestic production is large enough to meet domestic demand during the peak season out of current production, there will be no need for storage discounts. Local prices will simply follow world prices as the surplus each month is exported. In the short run the storage problem could also be solved by importing during the peak season. However, apart from fluctuations in world market prices that are counter seasonal with respect to local prices, the cost of freight for imports will probably be greater than the cost of domestic storage. To be successful, lower off-season prices will have to be available to all market participants, including farmers.

5.3 No Directed Ex-Factory Sales

The current practice of directing fertilizer producers to allocate a portion of local production to political favorites should be recognized for what it is: at best an attempt to delay closing unprofitable public enterprises; at worst, and favoritism intended to financially reward selected entities at the expense of others, needlessly adding to farmers' costs. This practice is likely to become obsolete after the 1998/99 production season at the latest, as increased domestic production eliminates the rents that are now being allocated.

5.4 Lower Duty to 10% or Less and Institute Variable Anti-Dumping Levy

The 30% duty, when it operates as it should, creates a gap between import and export parity equal to the duty plus international transport costs. With a 30% duty, the gap is 40% or more of the import price. As Egypt straddles the edge between import and export parity over the next year or so, while increased capacity comes on line, domestic price fluctuations may be quite severe even with no substantial change in world prices. With world prices currently at levels that are about as depressed as they will get, now is a good time to restructure the protection structure so that the level of effective protection will fall as world prices recover to normal levels. This can be accomplished by replacing the 30% duty with a 0-10% duty and an anti-dumping levy of the difference between 20% or 30% and the new duty. The lower duty would provide permanent protection regardless of the level of international prices, while the anti-dumping levy would ward off unfair competition from producers who sell in international markets at prices that are lower than prices to farmers in their own countries. This system provides substantial protection only when world prices are abnormally depressed. To minimize the cost of conducting the research necessary to determine that dumping is occurring, Egypt could elect to follow the lead of the EU or any country which identifies the problem and assesses anti-dumping charges. When prices rise to more normal levels, the dumping duties would be reduced or eliminated, with only the 7-10% import duty remaining. This would help keep Egypt's fertilizer competitive, while providing farmers fertilizer at the lowest possible price in the absence of subsidies.

For example, the European Union has recently determined that certain Eastern European countries are dumping fertilizer in the West European markets. Eastern European countries produce a surplus of nitrogenous fertilizers, especially urea, due to the relatively low cost of natural gas. Costs average US$ .03305 per cubic meter there, as compared with US$.033 for the United States, and US$.0422 in Egypt[1]. In addition, the decline in the exchange rates of Eastern European currencies has driven down export prices. This has not only given them a cost advantage, but they apparently are also selling abroad at a lower price than that paid by domestic distributers. To protect its fertilizer industry, the European Union has levied dumping duties amounting to US$28/ton, in addition to the regular 7% customs duty. Egypt could follow the lead of the EEC and do the same, while lowering the duty to 0-10%. This would provide the protection that domestic producers are seeking, without removing the incentive for controlling costs.

Recent developments in the import market may make this a moot point, though we do not recommend counting on it. Two traders began, in 1998, importing urea from Lybia. The amount was

[1]Note that higher gas prices that lead to higher domestic fertilizer prices may lead to some reduction in excessive use of fertilizer.

only 25,000 tons, but another trader is looking to import from Saudi Arabia. Both countries enjoy duty-free access to the Egyptian fertilizer market. Because of the low world price of fertilizer relative to the domestic ex-factory price, these imports enjoy a competitive advantage over all other sources of supply. As long as the domestic ex-factory price remains above the world market price, these traders will continue to import. Eventually, the stock of unsold inventory will force producers to reduce domestic prices to a small increment above import parity or suffer the complete loss of their domestic market share. In the short run the first one to lower prices will gain market share and hold onto a portion of the higher revenues available in the domestic market. But the continual presence of duty-free imports will keep the process going until the domestic price drops low enough to freeze out imports. At that point Egypt will be selling at export parity and only those producers that can compete at these levels will remain in business without subsidies.

5.5 Require Unrestricted Commercial Access to PBDAC Storage and Financing

While the organizational structure of the cooperative sector gives the impression of a unified, coordinated system, in practice, there is little coordination either among the different kinds of agricultural cooperatives or among the different administrative levels of each type. This is particularly true with multi-purpose cooperatives. With the reduced role of the Government as a result of the reform program, the cooperative system could potentially play a major role in agricultural marketing activities, whether for inputs or outputs, utilizing an extensive infrastructure already in place. To strengthen the cooperatives, the Government may want to consider requiring PBDAC to return to the cooperatives the storage facilities that were transferred to PBDAC from the cooperatives in 1976. This would enable them to draw supplies from the district or governorate cooperatives acting as their wholesalers. If this were to happen, a grater share of the fertilizer needs of farmers could be met by the cooperative sector.

In addition to returning storage facilities to the cooperatives, PBDAC should be prevented from using its financing function and withholding storage facilities to limit competition from the private sector. The Government should require PBDAC to charge no more than market rates for storage facilities, auction some PBDAC storage to the private sector, or encourage lending for fertilizer storage by commercial banks other than PBDAC. The GOE could even pass legislation making actions in restraint of trade a civil offense so as to encourage the private sector to file suit to prevent such restraint.

5.6 Improve Fertilizer Information System

Mellor (1997) and El Guindy et al. (1997) recommend establishment of a fertilizer information system to assist companies and the Government anticipate and respond to market signals. Such a system would collect and analyze quantitative data on fertilizer production, domestic deliveries, imports, exports, inventories, prices, consumption and international prices. The Egyptian Fertilizer Development Council might provide an appropriate structure if it were completely independent of the Talkha factory and in a more independent location. MALR has also distributed a situation and outlook (S & O) reporting program that is another source of such information.

5.7 Revise the Approval Process for Imports and Exports to Allow Selective Default Approval

Due to the seasonal nature of demand for fertilizer international trade provides a means for reducing storage costs by importing during the deficit season and exporting during the surplus season. According to El Guindy et al. (1997) in Egypt this arbitrage can further benefit from seasonal price differentials between the international and domestic prices.

We need to recognize that there is a need to certify the quality of imports and exports, and to monitor the quantity until such time as the Government has greater confidence in the ability of a relatively free and competitive private sector to assure an adequate supply in the face of rapidly changing market forces. Licensing to ensure this will continue. What needs to be done is to make it more responsive and timely. The Government should institute a default approval process, one in which approval is automatic if a response is not provided within seven days of filing for a license or permit.

5.8 Improve the Legal Framework and Licensing Procedures

Currently licenses are required at the local, governorate and national levels for trading in fertilizer. The process is lengthy and cumbersome. It should be possible to establish one locus for licensing and to have an integrated comprehensive application that covers the needs of all levels of government. In addition, there is a clear need for anti-trust type legislation, contract law relating to fertilizer, and quality control over imports, local producers and distributors.

6. IMPACT INDICATORS AND BASELINE VALUES

6.1 Proportion of Domestic Factory Sales to Market Intermediaries

Table 1.5 shows the evolution of market share at the ex-factory level for nitrogenous fertilizers from 1991 to the present. The data come from the Holding Company for Chemicals and Fertilizers. These data track the share of private traders based on actual deliveries. They provide a longitudinal time series of the best data available for tracking the evolution of the private sector over time. As data go, these are very solid, available in Cairo and are relatively easy to get. They should be able to be updated shortly after the end of the fiscal year of the producing companies.

One issue that will have to be resolved is how to classify the share of local production allocated to private companies that are owned in significant part by public companies and or foreign governments. For example, a company was recently formed, the Upper Egypt Company, to get into the fertilizer distribution business. It consists of a majority of private investors, most of whom are PBDAC officials, a private fertilizer dealer and PBDAC. PBDAC owns 24% of the company, just below the 25% level that would require the company to be audited by the Public Auditor and provide greater transparency. In early 1988 the Minister of Agriculture instructed Abu Qir to shift 15% of PBDAC's remaining share of domestic production to this company, which has no prior commercial record, a requirement normally demanded by Abu Qir. Will there be additional favorable treatment for this company, and others like it? Will they get subsidized storage from PBDAC? It would seem prudent to place them in a separate group, so that trends in special treatment are more obvious. They can always be combined later if studies show that they are not being indirectly subsidized by PBDAC.

6.2 Number of Dealers Purchasing Directly from Producing Factories, by Factory

At the same time as data are collected on the market share of the various market intermediaries, data can also be collected on the number of dealers having access to direct factory purchases. There is evidence that certain dealers have greater access than others, and that the criteria are not entirely commercial. As domestic production and competition increases, and everyone seeks to maximize market share, we would expect that factories would recruit more dealers. This provides solid inference that competition and efficiency are increasing. If there is competition at the factory level, there will almost certainly be competition at lower levels in the marketing chain.

6.3. Proportion of Production Distributed to Largest Dealers

The percentage share of the largest dealer in each product at each factory is also a good measure for monitoring favoritism and ensuring that a large number of dealers is not just a smoke screen to conceal serious favoritism or collusion. A significant number of dealers have to have enough volume to assure effective competition. These data should also be available at the Holding Company for Chemicals and Fertilizers.

6.4 Nominal Protection Coefficient

This is a useful measure of the extent to which the Government is linking domestic and export prices, and provides a measure of implicit taxation and subsidies in the fertilizer sub-sector.

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- Mr. Abdel Moneim Ahmed Okail, Chief of the Board of Directors, El-Nasr Co. for Fertilizers and Chemical Industries, Cairo.
- Mr. Farouk Abdel-Latif, Chairman, Commercial Sectors, El-Nasr Co., Cairo.
- Mr. Mohammed Ali Helal, Chief, Production Units, El-Nasr Co. for Fertilizers and Chemical Industries, and Supervisor of Egyptian Fertilizer Development Center (EFDC), Talkha.
- Mr. Mesbah Ashour, Director of Consultancies and Technical Studies, EFDC, Talkha.
- Mr. El-Sayed Abdel-Aleem, Director of Research and Operations, EFDC, Talkha.
- Mr. Munir El-Ghareeb, Director of Commercial, Administrative, and Financial Affairs, EFDC, Talkha.
- Mr. Fouad Abdel Moneim Hagrass, Chairman of the Board of Directors, HAGROPOTA Co., and chairman of the Egyptian Fertilizer Dealers Association.
- Mr. Abdel-Salam M. El-Gabali, Chief of the Board of Directors, El-DAWLIAH Co. (Polyserve).
- Mr. Mamdouh Abdel-Baki, Chairman of the Board of Directors, AFRO-ASIAN Co.
- Mr. Mohamed El-Kheshen, Chairman of the Board of Directors, El-Menoufia Co.